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Original Communications.

THE INDICATIONS FOR THE USE OF ALCOHOLIC STIMULANTS IN TYPHOID FEVER.

BY J. H. MUSSER, M.D.,
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It is somewhat of a paradox to say that the best indication for the use of stimulants in typhoid fever is to prevent their use—that is, prevent by proper treatment the patient falling into that state of the system which requires stimulation. If we recall the states which must be combated by stimulants, and note their course, we can appreciate the preventive measures which may be all-sufficient to lessen the use of stimulants. Briefly put they are:

1. Toxemia.
2. Exhaustion.
3. The accidents—perforation, hemorrhage.

Now it is well known that the modern methods of treatment—namely, the use of water, internally and externally—lessen or mitigate the effects of the toxemia, and secondarily the exhaustion, to a far greater degree than any form of treatment thus far employed. Any hospital steward will tell us that less money is spent for alcohol since the introduction of the "Brand method" than

before it was employed. All physicians recognize that the necessity for the use of stimulants arises less frequently than formerly. Moreover, the improvements in nursing, which minimize greatly the exhaustion that often is a question of good or bad nursing, lessen the necessity for stimulants. The latter state is also lessened in degree by prompt treatment of the diarrhea which contributes to the exhaustion.

When it is beyond our power to prevent the occurrence of the states or conditions above mentioned, under what circumstances are we required to resort to stimulants?

1. *Toxemia.* — Briefly, expression of the toxemia is made known either by a state of ataxia or one of adynamia. In the former there is excitement, a state of erethism, active delirium, with cerebral congestion, a flushed face, an injected eye, delusions, incoordination of movement, twitchings, jactitations, and restlessness. The patient strives to get out of bed. The pulse is full and strong—at first, at least. In this state applications of cold are of the utmost service, while alcoholic stimulants are to be avoided. The drug of any service, save the coal-tar preparations, which are fraught with danger, is opium. This, in small and therefore seemingly stimulating doses, brings about relief in twenty-four or forty-eight hours. Five or ten minims of the deodorized tincture of opium every three or four hours has acted happily in most cases under these circumstances.

Adynamia, on the other hand, is characterized by depression, as seen in exhaustion of the nervous, muscular, and circulatory systems. It is well exemplified in the so-called "typhoid state." There is dulness, approaching to stupor, low and muttering delirium, subsultus; an apathetic countenance, often suffused; the pulse increases in frequency and becomes dicrotic; the secretions, notably the urine, diminish in amount; the skin is hot and dry, the tongue dry and brown. Muscular strength is lost, and each day exhaustion becomes more profound. Here we find the employment of stimulants imperative. They should be used in small doses at long intervals, but should be increased or decreased in amount and in frequency with the symptoms. If the tongue becomes moist, the delirium lessens and peaceful sleep ensues after the alcohol; and if the pulse slows and becomes stronger, and the kidneys act more freely, we know our stimulation is successful. If the symptoms are aggravated, notably the delirium increased and the renal secretion lessened, we must proceed most cautiously and employ other than alcoholic stimulants.

It is better at first to err with too little than with too much stimulation. The old-fashioned rule of relying upon the exhalations from the lungs as a test of the degree of stimulation is not a bad one. If the alcohol is noticed on the breath one hour after its imbibition, the patient is getting too much. The best guide as to the beneficent effects of stimulation is seen in the renal secretion. If this keeps above fifty ounces in twenty-four hours, plenty of water being used internally, I am not anxious, and if 60, 80, or 100 ounces is secreted I feel safe as to prognosis. If, then, the renal secretion increases by stimulation, such treatment is very necessary and beneficial.

We can be more liberal in the use of alcohol in one of the toxic forms of typhoid fever —namely, typhoid septicemia. This condition is characterized by *exhaustion*—indeed, by the symptoms which are common to septicemia from other infections. It is most frequently seen in old subjects. The temperature range is usually not high. There is early delirium, often excessive, without the true typhoid state. There is a tendency early to involuntary passages of urine and feces. The specific microorganism is found with ease in the blood, urine, and feces, and usually in foci of infection. Alcohol may be used freely, and is borne well. It should be given every two or four hours in liberal doses. Champagne may be employed as well as spirits. I have seen a patient require one quart of champagne and twenty-four ounces of whiskey in twenty-four hours.

2. *Exhaustion.* — This state is due to the fever, to diarrhea, to imperfect feeding, to any pathological discharge, as of an abscess. Diarrhea and fever are the chief causes. It should be a foremost rule of action to control the former at almost any cost. The state of exhaustion need not be described, nor are its symptoms detailed. The pulse, however, and the circulation must be the chief guide to the recognition of its degree.

All degrees of stimulation are required, from the use in moderation of a few ounces of wine in twenty-four hours to many ounces of whiskey or pints of champagne. The employment of the stimulant must be on the same line indicated in the discussion on adynamia.

3. *The Accidents.*—Perforation requires the

same stimulation needed in surgical shock from other causes. Stimulation must be proceeded with gradually. In hemorrhage free stimulation is not the rule, but gentle and persistent stimulation, combining opium with the whiskey or brandy.

4. *Convalescence.*—In convalescence, stimulation—partly to overcome exhaustion, more frequently to aid digestion—must be resorted to often. For the former the degree of stimulation can only be determined by the degree of exhaustion. For the latter light wines or malt liquors are satisfactory and sufficient.

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*INTESTINAL ANTISEPSIS IN TYPHOID FEVER.**

By J. M. Anders, M.D., LL.D.,

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At the outset I assent to the view that typhoid fever "is no more primarily an intestinal disease than is smallpox primarily a cutaneous disease" (Osler), or lobar pneumonia is solely a disease of the lungs. It must, however, be conceded that in a majority of the cases of typhoid fever the seat of the principal infection is the intestinal tract. This being the case, there would seem to be naturally embraced in the symptomatic treatment of typhoid fever some form of intestinal antisepsis. Compared with the treatment by baths, or the importance of correct feeding and the judicious use of stimulants and good nursing, intestinal remedies occupy a subordinate position, particularly since the Brand method has been so generally adopted. Indeed, every detail of the former items of treatment is so vitally important that whatever I may say in favor of intestinal antiseptics is in no wise intended to disparage the use of these more efficacious human agencies. Hence, I do not claim that the antiseptic treatment deserves to be ranked as a specific method; neither have I any statistics nor startling testimonials to bring forward.

To address antiseptic remedies to the bacillus of Eberth or its toxins, or to the intestinal lesions, would, I believe, be futile. The claims put forth by some clinicians that typhoid fever may be aborted in this manner are sadly in need of confirmation. The principal indication for the use of antiseptics is the meteorism which owes its origin to decomposable material in the prima via. The normal antiseptic fluids in the intestines, particularly the bile, are present in diminished proportion in this disease, owing to defective hepatic secretion. This may tend to increase the amount of decomposable matter. From analogy, the digestive tract must similarly miss the hydrochloric acid which normally inhibits putrefactive changes. These reasons, coupled with the introduction into the system not uncommonly of an overabundant aliment, explain to some extent at least the occurrence of tympanites in this disease. Assuming milk to be the principal article of food, I would advise the use of HCl in small doses after each feeding, with a view to supplementing defective gastric secretion in cases in which meteorism is a pronounced symptom. In typhoid patients who are robust, the employment of calomel during the first few days of the fever is to be advised and encouraged. An agent of acknowledged worth as a hepatic stimulant, its value as a disinfectant of the gut, it must be recollected, is also considerable. Moreover, it serves to remove retained decomposable material, "and so places the bowel in a favorable condition for the subsequent maintenance of antisepsis" (R. H. Quill). I have repeatedly observed that its employment in this manner was followed by a milder course of the disease than is ordinarily encountered.

It has been my habit for a number of years to prescribe intestinal antiseptics throughout in cases of enteric fever, except in a small minority of light forms. I have never been able to satisfy myself that it is practicable to produce and maintain intestinal antisepsis, however free the use of this class of agents, but have observed that they render the dejecta less offensive. I must admit also that intestinal antiseptics are powerless to inhibit the potency of the bacilli and hence to diminish the quantity of typhotoxin supplied to the circulation. In short, we cannot hope to destroy the typhoid bacilli harbored by the walls of the ileum; and they, or most of them, have long since gained the circulation and adjacent organs—*e. g.*, the mesenteric glands, gall-bladder, etc.—where they develop their toxins. On the other hand, it is highly probable that intestinal disturbance in typhoid fever is in a measure at least dependent upon disorder of function which is the indirect effect of the typhoid infection. Some of the toxins occupying the intestinal canal result from the virulency of usually

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harmless organisms, whose habitat is the intestine. Presumably these toxic substances are absorbed from the tract and add to the gravity of the situation. A rational indication for treatment under these circumstances is to either neutralize in or eliminate from the intestinal canal these toxic substances. Perhaps the most efficient agent, and one that is free from all objections, is water. The free use of water tends to cleanse the gastrointestinal tract, besides increasing elimination of the typhotoxins and other retained substances through the kidneys—the principal channel through which nature aims to effect their excretion.

It is a matter of common observation that moderate constipation in typhoid fever is favorable and is attended with less meteorism than is met with in cases showing even moderate diarrhea. Owing to this fact I hesitate to recommend, nor have I been in the habit of employing, laxatives to unload the bowel for their eliminative effects, except, as indicated before in speaking of the use of calomel, in the early stage. Numerous advocates of the purgative treatment are to be found. Their claim that it rids the intestines of the typhoid bacilli and their toxins is absurd, in view of the fact that most of the bacilli, as intimated before, soon pass beyond the reach of purgatives. Osler contends that they are not indicated, "as it is not likely that the typhoid bacilli multiply and develop their poison to any extent in the intestinal contents themselves." I have, however, observed that saline laxatives given in divided doses until the evidences of their action are obtained are powerful to cut short the intermittent form of fever, sometimes seen late in protracted cases. That secondary bacterial invasion from the intestinal tract sometimes occurs, for which the debilitated state of the body furnishes the golden opportunity, is I think indubitable; and on this theory I have been led to use, as stated, saline laxatives with gratifying results. I regard it as undoubted that the diarrhea in typhoid fever is sometimes ascribable to the irritating properties of food residue from improper and overabundant feeding. Under these circumstances a mild laxative is followed by amelioration of the intestinal symptoms. I trust that my statements concerning the use of laxatives will not be construed as corroborative of the claims of the Woodbridge treatment—a method that should be mentioned only to be condemned.

Intestinal antiseptics have a limited sphere of usefulness, exerting as they do a favorable effect upon some of the intestinal features, particularly tympanites; they also exercise a mitigating influence upon the diarrhea when present. The latter symptom, however, does not furnish an indication for their use unless the number of stools exceed three or four daily. The bowel antiseptic that I have employed for many years is salol. While this drug has a marked symptomatic influence, it is questionable whether complete antisepsis of the intestinal canal is accomplished by its use, and the same may be said of the remainder of the aromatic group—naphthol, benzo-naphthol, and naphthalin. The dose of salol in cases of average severity is three grains every three hours. When the indications are urgent, as much as two grains every hour may be employed for a short period, or until the urine is perceptibly tinged. It is best to use the drug in powdered form, as I have seen compressed tablets pass through the gut unchanged. In cases in which marked distention of the bowel is present as a symptom of the typhoid state, turpentine is to be preferred; it is an efficient antiseptic and also exercises a stimulating effect upon the circulation and the secretions. White turpentine is the preferable preparation, and may be administered in doses of three to five grains every three or four hours.

For the constipation which is sometimes present throughout the entire course of the disease, I have found an enema of soap-suds given every second day to be followed by the best and speediest results. In a few instances I have practiced intestinal irrigation, with a view to diminishing absorption of toxins from the rectum and colon. This method is not to be thought of in cases in which the principal lesions are in the small intestines with moderate tympanites. On the other hand, in a considerable proportion of the cases the ulcerative process is largely confined to the colon; there is marked tympanites due to overdistention of the colon, and an active diarrhea, sometimes of a dysenteric character, or involuntary discharge of the feces may occur. In these cases intestinal irrigation, judiciously and cautiously carried out, tends to sweep from the bowel both decomposable material and a variety of resultant toxic products. Doubtless the accompanying catarrhal inflammation is decidedly benefited by this method of treatment. On the mode of administration will depend largely the success of this method.

In the first place the antiseptic solution employed must be warmed; it must be gently introduced at a low pressure, so as not to overdistend the inflamed and ulcerated colon. A soft-rubber rectal tube, "fenestrated at the sides, is to be gently passed up to, or a little within, but not through the sigmoid flexure" (W. W. Johnston). The end of the rectal tube attached to the fountain or Davidson's syringe is to be detached after introducing about one quart of the solution, when the latter will escape without voluntary effort on the part of the patient. For this purpose I prefer either salicylic acid or mercuric chloride; the strength of the former solution should not exceed one-half of one per cent, nor that of the latter 1 in 6000. In bad cases these irrigations should be practiced every fourth hour, whilst ordinarily thrice daily suffices.

1605 WALNUT STREET.

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*THE DIET IN TYPHOID FEVER.**

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There is nothing in the science and practice of medicine so firmly established as to obviate the necessity for an occasional inquiry into current views and methods of procedure. Increasing knowledge of etiology and pathogenesis cannot fail to affect to a greater or less degree views as to treatment formerly considered as permanently established. It is, therefore, well at times to analyze our reasons for using and to test the efficacy of various methods of treatment in order that we may see to what extent they coincide with advances in our knowledge of the natural history of disease. This review of our ground is one of the objects of such a symposium as we are holding this evening.

For years we have been in the habit of keeping our patients with typhoid fever upon a strictly fluid diet from the first time of recognition of the disease to a varying period after subsidence of the temperature to a normal point. With the large majority of physicians I have been in the habit of following strictly these rules, my only deviation being the giving of vanilla ice cream, which of course becomes liquid long before it reaches the stomach. For some time I have felt doubts as to the propriety of the course that I was following, but I must confess that I have not had the courage to depart from the rules so long and so strictly laid down as to the absolute necessity for liquid diet. Within recent years others have been bolder, and encouraged by their results I shall in the future be a less strict adherent of the liquid diet dogma. I regret that I have no facts of personal observation to bring before the meeting, but I shall endeavor to give in what follows my reasons for determining to adopt a more liberal course.

Typhoid fever (I believe wrongly and misleadingly spoken of by some as enteric fever) is an infectious disease produced by the entrance into the tissues of the body and multiplication therein of the bacillus of Eberth. The portal of entry is almost, if not quite, exclusively the wall of the bowel. In its passage through the bowel wall the lymph-adenoid tissue in the solitary and agminated glands is markedly affected, possibly in part because of their retention of and antagonistic action toward the bacilli. From this point the bacilli invade the organism and are scattered through the various tissues. From the invaded tissues and organs products of bacterial activity and of cell-destruction are absorbed. The patient suffers from toxemia, which if sufficiently intense is capable of producing death. Incidentally there may be produced symptoms and signs due to the presence of the microorganisms in various tissues, with evidence of involvement of the brain and its membranes, of the lungs, of the kidneys, etc. Typhoid fever is, then, a general infection with certain special localizations of the infecting agent. Within recent years many cases of typhoid fever have been reported wherein the autopsy showed no intestinal ulceration, all of these cases being therefore necessarily fatal not from any local effect of bacillus upon the intestinal wall, but from causes independent of the intestinal canal. How many cases of typhoid fever without intestinal lesions recover it is, of course, impossible to say, as at autopsy alone can we determine the absence of ulceration of the bowel. To look upon typhoid fever as essentially a disease of the bowel is, therefore, now known to be an error.

The typhoid bacillus produces its worst and most lasting effects not by causing intestinal ulceration, but by the saturation of the system with toxic materials. Curschmann (Nothnagel's Specielle Pathologie und Therapie, Bd. iii, Th. i, p. 376) has analyzed the cause of death in 367 fatal cases. Of

*Read before the Section on General Medicine, College of Physicians of Philadelphia, February, 1900.

these 51.4 per cent died from the severity of the infection. Not only must we remember such figures, but also bear in mind that the various sequelæ of typhoid fever and the prolonged disabling convalescence are produced not by the intestinal ulceration, and not by any means entirely by the diarrhea, but by the toxic absorption.

The question naturally arises, "Is our present method of dieting typhoid fever patients the best that we could employ, not only to avert death, but to shorten the course of the cases to the greatest possible extent and to enable our patients to resume their ordinary occupations in the shortest possible time?"

The intestinal lesions need to be considered in any plan of diet. The dangers from these are hemorrhage and perforation. The former of these accidents occurred in 127 (7.3 per cent) of Liebermeister's 1743 cases. Of these 127 patients, 49 (38.6 per cent) died; or to put it in another way, 2.8 per cent of his total number of cases died after having had an intestinal hemorrhage. Curschmann gives hemorrhage as the cause of death in 6.6 per cent of his 367 fatal cases. Murchison gives 3.8 per cent as the number of instances of hemorrhage among his 1580 cases, while only a little over two per cent of his total cases died after hemorrhage occurred. In comparison with the total number of cases, and with those dying from toxemia, the fatality from hemorrhage is extremely slight, the frequency of hemorrhage is not excessive, and the results of hemorrhage are seen to be not by any means necessarily fatal. Perforation is another serious danger, owing to the usual presence of typhoidal ulceration of the bowel. Liebermeister gives the frequency of perforation as a little over one per cent in the series of 2000 cases. Murchison places its frequency as 3.4 per cent in his 1580 cases. Perforation caused death in 14.1 per cent of the 367 *fatal* cases tabulated by Curschmann, and Murchison found that among 1721 autopsies performed in England, Germany, and France, there was perforation in 11.38 per cent. Fitz has found that the mortality from perforation among 4680 cases amounted to 6.8 per cent.

The cause of death may therefore be considered as standing in the ratio given by Curschmann as follows: Severity of infection, 42.4 to 51.4 per cent; perforation, peritonitis, 14.1 to 19.0 per cent; intestinal hemorrhage, 6.6 to 9.0 per cent.

It would therefore seem that the results of systemic infection formed the most dreaded feature of the disease.

Before speaking of the question of diet proper, there is a subject midway between this and drug treatment that is theoretically rational and practically of value in combating systemic infection. I refer to the administration of copious draughts of water. In the *Gazette des Hôpitaux* of April 6, 1886, Landouzy urged the importance of making patients with typhoid fever drink copiously of water in order to increase elimination of infectious principles, oxidation products, and waste matter. Debove (*Bull. et Mém. de la Soc. Méd. des Hôp.*, 1890, t. vii, 3s, p. 688) reported that in the last two years he had been giving no medicine to patients with typhoid fever, but had required them to drink from six to seven liters of liquid in every twenty-four hours, and that by this method he had had a mortality of 9.2 per cent among fifty-four cases so treated. Valentini in 1891 reported the results of copious libations used in Lichtheim's clinic (*Deutsche med. Woch.*, July 23, 1891, page 914). Two liters of milk, one liter of bouillon, and as much water as possible were given in twenty-four hours, 200 grammes of milk-sugar being dissolved in a liter of water to increase diuresis. In one of his cases the urinary output increased up to 6500 cubic centimeters, with corresponding improvement in other respects. In a long and elaborate article in the *Revue de Médecine* for November, 1893, and December, 1894, Hector Maillart records his experience with this plan of treating fourteen cases. In the detailed report of the course of the disease the output of urine and urea is seen to be greatly increased, while loss in weight is either slight or was not observed. One case died, and this two days after entrance into the hospital; two cases had relapses; one had osteomyelitis. From two to sixteen liters of water was daily ingested. The temperature was lowered, the tongue and mouth became moist, and sordes disappeared. The stomach tolerated the fluid well, and there was no increase of diarrhea. Stupor lessened and headache became less marked. The volume of fluid did not badly influence cardiac weakness; on the contrary, he advocates this as a means of combating cardiac symptoms. The duration of the disease was not influenced.

This question is touched upon here as it is a point that should be remembered in changing from a fluid to a more solid diet.

The advantages of a milk diet are the ease with which it can be prepared and administered, the volume of water and the diuretic properties contained in milk, and the ease with which excessive administration can be detected by the presence of curds in the stools. Its disadvantages are the dislike of many people to the taste of milk, the monotony of the diet, the lack of concentration of nutritive material, and the fact that milk soon ceases to be liquid after entering the stomach. Broths as usually made do not contain a sufficient amount of nourishment to maintain life, while they contain extractives whose capacity for harm we do not certainly know. Departures from the liquid diet have been made with sufficient freedom to make it advisable to summarize the reports already at hand. Some of the articles appearing in the journals may have escaped my notice, but even those summarized below do, I think, make it necessary for us to carefully consider the abandonment of the old, easy prescribing of milk and broths in a routine manner for every case of typhoid fever.

Shattuck (*Boston Medical and Surgical Journal*, Dec. 20, 1894, p. 604) wrote a paper upon "Some Points in the Modern Treatment of Typhoid Fever," in which he speaks of our inability to estimate the extent of the intestinal lesion in typhoid fever, and of the fact that in cases of tuberculous ulceration of the bowel we do not limit the diet to liquids. He says that he can see no reason why patients with typhoid fever should not have anything easy of digestion, and leaving no residue which could excite undue peristalsis or irritation of the ulcerated surfaces in the intestine. For two years he had been giving to patients that could take them the following articles: eggs (raw or very soft-boiled), custards, animal broths, and strained gruels. He says, what must be believed to be true from our present scanty knowledge of the cause of relapses, that a *true* relapse cannot be considered as being due to food.

In 1897 A. G. Barrs (*British Medical Journal*, Jan. 16, 1897, p. 125) wrote a paper entitled "A Plea for a Less Restricted Diet in Typhoid Fever." The following is a *résumé* of his article: The method of feeding advocated by him had been employed for three years and had been carried out on thirty-one cases. Three of his patients died, none of these having been able to take any solid food, and, therefore, unaffected by his method of feeding. True relapse occurred in two cases (6.31 per cent). He claims that starvation during convalescence would tend to prevent healing of the intestinal ulcers, as it would similar lesions in other parts of the body. Peristalsis is constantly taking place, and Barrs believes that it would not be increased by solid food digested by the stomach any more than it would by milk. The method of feeding was, in the acute stage, the giving to the patient "such wholesome food, solid or fluid, as he can take, using the word 'take' to mean that he likes it and wishes for it, and enjoys it." He was careful only to give solid food if the patient really relished it and did not wish it from a desire to maintain his strength. Barrs states that reasonable diet of any kind had no effect at all on diarrhea or constipation. In his patients no case of perforation occurred, and tympanites was not increased.

Samuel West (*British Medical Journal*, Jan. 30, 1897, p. 260) took issue with Barrs's conclusions. His arguments in favor of liquid died were that milk is not starvation diet; that the wasting, anemia, and debility were not the result of diet but of the fever; and that the patient's desires were not a safe guide. He considers that the change from a liquid to a solid diet is accompanied by great risk of relapse, and that chemical changes in diet may act on the protective substances. He believes, therefore, in making no change whatever in the diet until the temperature has never risen above the normal for ten days. A pertinent question might be, "Why wait for ten days?" Relapses have occurred after the lapse of that time. And again, "Why should it not be equally dangerous to change from solid to liquid diet?"

A paper by F. C. Shattuck (*Journal of the American Medical Association*, July 10, 1897, p. 51) upon the subject of the diet in typhoid fever is one of the best upon this subject. The substance of it is as follows: Typhoid fever kills by perforation or exhaustion. Perforation kills the patient to an extent of only five to ten per cent. In at least ninety-one per cent of fatal cases death comes from exhaustion, which is brought about by toxemia, fever, diarrhea, vomiting, or intestinal hemorrhage. For five years he had been enlarging the dietary of his typhoid patients. The influence of this change, or rather the absence of harmful influence to say the least, is shown by the fact that in the years from 1886 to 1893, 233 cases were given a milk diet with a mortality of ten per cent; while during the years from 1892 to 1897, 147 pa-

tients on a more liberal diet furnished a mortality of 8.1 per cent. His dietary list will be mentioned below.

Dulles (*Transactions of the College of Physicians of Philadelphia*, vol. xvi, page 221) in 1897 read a paper upon the treatment of typhoid fever, in which he advocates giving as little food as possible, but when the patients wish it letting them have albumen water, milk with cocoa, tea and coffee, eggs, custards and simple corn-starch preparations, fresh fish, soft part of oysters, sweetbread or beef's tongue, with eggs, milk, and cream. If the patients wished for food he allowed baked or mashed potatoes, rice and corn-starch preparations, with thoroughly boiled oatmeal, spinach, well-boiled onions and very moderate quantities of toasted bread thoroughly softened with boiling hot water, soft milk-toast, jellies, ice cream, and orange juice in moderate quantities. Dulles gave no report of cases or statistics to show in what class of cases and with what results his dietary was prescribed.

Bushuyev in 1898 wrote an article upon the feeding of typhoid fever patients, which has been fully abstracted by Thayer in the volume of Progressive Medicine that appeared in March, 1899. From this abstract I shall select some of the most important portions. Bushuyev first states that substances, even though hard to digest, reach the seat of the lesions in typhoid fever so changed as to be incapable of injuring the intestine, and that even such materials as fruit seeds and skins are so rolled up in mucus that they could not injure the gut. Tuberculous ulcers do not perforate from the eating of solid food. In autopsies on patients dying on the thirtieth day or later, who had been liberally fed, there was no change not seen after the use of ordinary fluid diet. With his colleague, Sartsievich, he made a comparative test of his own method of liberal feeding (white bread, boiled meat, a cutlet and soup) with that ordinarily used. His patients showed a larger percentage of recoveries, a shorter stay in the hospital, fewer days of fever, less incapacity on discharge, and a slight apparent prolongation of life in the fatal cases. During 1897 his mortality was 8.2 per cent among 318 patients, which contrasts favorably with that of previous years (10 to 9.3 per cent). The general condition of the patients was better and steadily improved upon instituting a fuller dietary, while even those who were very ill sat up in bed to eat their meals. No gastric or intestinal symptoms were observed, the bowels being often constipated, and no pea-soup evacuations were seen in those on the more liberal diet. Four cases of hemorrhage occurred, only one of which could take the more solid diet. Perforation occurred only once in 509 patients during two years (0.19 per cent) as compared with the usual 1.25 to 3.04 per cent. Otitis media and parotiditis were rare, and no bed-sores occurred. The loss of weight was less than with those on milk diet; and the patients preferred to walk to the tub or to the closet, while they went out in the garden almost on the first fever-free day. Bushuyev's dietary will be referred to later.

Edwin F. Wilson (*Columbus Medical Journal*, Oct. 20, 1899) has also reported good results from the use of a less restricted diet than that usually employed, although his list is by no means so surprising as is that of the last author.

In the *Boston Medical and Surgical Journal* of November 23, 1899, Fitz compares the mortality and accidents under different dietaries in tabular form, thus:

	Per cent.
Average mortality during years of liquid farinaceous food	14.1
Average mortality in milk and beef tea decade	16.6
From 1879 to 1899, with milk as the chief ingredient,	14.6
From 1893 to 1898, among patients on liquid and soft diet of Shattuck	11.3
From 1893 to 1899, hemorrhage among patients chiefly on milk diet	10.6
From 1893 to 1899, hemorrhage among patients with strained proteid and amylaceous diet	16.0
From 1893 to 1899, hemorrhage among patients on fluids and soft solids	9.0
From 1869 to 1879 the average frequency of perforation was	1.1
From 1879 to 1889 the average frequency of perforation was	.3
From 1889 to 1899 the average frequency of perforation was	1.6
Under a largely milk diet the ratio of relapse was	13.1
Under strained proteid and amylaceous diet	11.1
On fluids and soft solids	10.2

In regard to hemorrhage he concludes that "a diet of soft solids not only does not provoke intestinal hemorrhage, but also rather lessens the tendency to this complication. On the other hand a strained mixed diet may increase somewhat the frequency of hemorrhage." His figures show that there is no evidence that diet has any influence upon the occurrence of perforation; while relapses are rather more frequent when a largely milk diet is employed.

Morris Manges (*New York Medical Record*, Jan. 6, 1900) has tried the use of an increased dietary in eight cases, and contrasts these with

eighty-two cases on liquid diet. Diarrhea was not increased, the tongues were always moist, there was less emaciation, less anemia, and no thromboses. No deaths occurred. Relapses occurred in two cases, one three weeks after discharge from the hospital. The other patient had her first relapse when on milk alone.

In *The Lancet* of January 13, 1900, R. W. Marsden gives his results in 200 unselected cases. All received milk at first. If the patient expressed a desire for it he was given on successive days bread and milk with custard, fish with mashed potatoes, chicken, bread and butter, and finally minced meat. In one hundred cases fish was allowed prior to defervescence; in thirty-six it was given on the first afebrile day; in sixty-four it was given after the completion of defervescence. In sixty-one cases diarrhea was absent throughout. In twenty-one cases diarrhea was present at the time the fish was given, but was not increased. In six patients hemorrhage occurred, in four before any solid food was given, the other two having been given solids shortly after admission, but hemorrhage did not occur until the end of the third and fourth weeks, and was slight. None of them died. No case of perforation occurred in the two hundred.

Relapse occurred in twenty-seven (13.5 per cent). These occurred on the first day of giving solid food in three, one day after in one, two days after in one, four days after in two, six days after in two, eight days after in three, and from nine to twenty days after in fifteen.

Shattuck's dietary consists of the following articles:

Milk, hot or cold, with or without salt, diluted with lime-water, soda-water, apollinaris, Vichy, peptogenic peptonized milk, cream and water (*i.e.*, less albumen), milk with white of egg, slip, buttermilk, kumiss, matzoon, with whey, milk with tea, coffee, cocoa.

Soups: Beef, veal, chicken, tomato, potato, oyster, mutton, pea, bean, squash; carefully strained and thickened with rice (powdered), arrowroot, flour, milk or cream, egg, barley.

Horlick's and Mellin's food, malted milk, panopeptone, bovinine, somatose.

Gruels: Strained corn-meal, crackers, flour, barley-water, toast-water, albumen-water, with lemon-juice.

Ice cream.

Eggs, soft-boiled or raw, egg-nog.

Finely minced lean meat, scraped beef; the soft part of raw oysters; soft crackers with milk or broth.

Soft puddings without raisins; soft toast without crust; blanc mange, wine jelly, apple-sauce, and macaroni.

The dietary used by Bushuyev is far more liberal than any that has yet been suggested. For two years he has been giving the following meals: At 7 A.M., tea with a roll; at 8 A.M., 400 cubic centimeters of soft oatmeal, barley, or wheat porridge, with butter; at 9 A.M., one or two boiled eggs, soft or hard; from 10 to 11, a glass of milk with a roll and half a cutlet and broiled meat; soups, a little preserved fruit, or some jelly form the meal from 12 to 12.30; at 3 P.M., tea with a roll was given; at 6 P.M., a cup of chicken or beef soup, semolina pudding, or milk and a bit of chicken were given; at 8 P M. the patient had milk with a roll; while coffee or tea with milk, or coffee with cognac, were given from two to four times during the night.

As I have said before, I regret that up to the present time I have not used increased diet in the treatment of typhoid fever. From the papers that I have quoted above I think we can conclude that an increase in the dietary beyond that ordinarily used is safe, and, if assimilated, must be a material aid in combating the systemic effects of the typhoid poison. Of course, we will always have to bear in mind that in fever digestive capacity is diminished, but it would seem from the experience of those quoted above that possibly heretofore we have erred too much on the side of safety, and that at least toward the end of the fever we could, by giving a more liberal diet, not only shorten the period of convalescence, but discharge our patients in a condition allowing of their earning a livelihood in a shorter space of time than under the old method. From the facts already at hand it would seem that hemorrhage and perforation are not more frequent when we feed our patients with more liberality. We can therefore with more freedom attempt to combat the debilitating effects of toxemia, the most frequent cause of death. Our dread of producing relapse by too early feeding is probably without foundation, as is shown by the frequency of relapse without any change in diet having been instituted, and its frequent absence after forbidden indulgences; recrudescence being frequent under such circumstances. The chances of sequelæ and the protraction of convalescence

after the fever period would naturally be diminished by anything that conserved the patient's vitality.

In conclusion I would merely state that, while I should doubt the ability of a patient with fever to take and assimilate many of the articles allowed by Bushuyev, I am convinced that we have now sufficient facts before us to warrant, if not to compel, greater liberality in diet in cases of typhoid fever.

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*CONCERNING THE SUBSTITUTES FOR ENUCLEATION OF THE EYE AND THE PREPARATION OF THE STUMP AFTER COMPLETE ENUCLEATION, WITH A DESCRIPTION OF SOME OF THE METHODS WHICH HAVE BEEN ADVOCATED AND PRACTICED.**

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Although many experienced ophthalmic surgeons are not persuaded that any one of the operations which have been designed to replace enucleation has satisfactorily substantiated its claims, doubtless they all would admit that, from the cosmetic standpoint at least, enucleation leaves much to be desired.

Before discussing modifications of the ordinary methods of enucleation a description of some of its substitutes may be given.

Optico-ciliary neurectomy, except, perhaps, as an occasional preventive of sympathetic trouble when patients decline enucleation, or to relieve the suffering caused by a blind glaucomatous eyeball, is an operation not to be commended. As Noyes says, "at present it does not command general approval." Almost he might have said, I think, "it commands general disapproval," with the exceptions noted.

Sclero-optic neurectomy, designed by Ernest Hall,† is done as follows:

"With speculum in place, the scissors is inserted about 25 millimeters behind the sclero-corneal junction sufficient to include the ciliary body, and complete section made, thus removing the whole front of the eyeball. The vitreous, choroid, and retina are removed, hemorrhage controlled, and the speculum inserted within the ball, thus holding both eyelids and edges of sclerotic open. The point of entrance of the optic nerve is then grasped with two forceps and the scissors inserted as close to the nerve as is possible to avoid wounding the ciliary arteries, and a circular incision made in the sclerotic, freeing the optic nerve, which is then drawn forward and severed about 25 millimeters from the sclerotic junction, thus removing a section of the optic nerve. The sclerotic and conjunctiva are closed vertically in order to give normal tension to internal and external recti, as lateral movement is of greater importance than vertical. After the artificial eye is adapted there is perfect movement within 35 degrees laterally and 20 degrees vertically."

Under the name *Eviscero-neurotomy*, J. G. Huizinga* describes an operation which he performs according to the following method:

"Having obtained as aseptic a field of operation as is possible, the cornea is amputated and the opening thus made enlarged laterally by slitting the sclerotic up to the insertions of the internal and external recti muscles.

"The contents of the globe are then removed in the same manner as for simple evisceration.

"While an assistant keeps the mouth of the wound widely open, a pair of forceps is introduced into the inside of the ball, through the opening made by amputation of the cornea, and the sclerotic coat is caught about midway between the equator and the posterior pole, and buttonholed with blunt-pointed scissors.

"This opening is then enlarged laterally, parallel with the equator, until it has encircled one-half of the ball. A blunt, curved enucleation scissors is then introduced through this opening and passed back of the globe, and the optic and ciliary nerves are severed. Having thus loosened the eyeball posteriorly, this part can then be drawn forward up to the corneal opening by partly everting the sclerotic from behind by the aid of forceps, and that part of it, including the nerves, is removed by continuing the cut parallel with the equator until it extends entirely around the eye. In this manner the posterior segment of the eye, a section somewhat larger than the cornea, is removed, and all nerve connection thoroughly and permanently obliterated, while the rest of the sclerotic with its muscle attachments is allowed to remain.

"The introduction of an artificial vitreous

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* Read before the Ophthalmic Section of the College of Physicians of Philadelphia, Feb. 20, 1900.

† *American Journal of Surgery and Gynecology*, 1895-6, viii, 96; also *Dominion Medical Monthly*, 1896, lvii, 494-98; also *Annals of Surgery*, Philadelphia, 1898, xxvii, 640-642.

* *Journal of the American Medical Association*, xxxiv, 1899, p. 394.

is very desirable, notwithstanding the fact that it is not always retained, and the difficulty occasionally experienced to obtain prompt and perfect union. The use of the fenestrated aluminum ball in connection with this operation, as advised by Bryant in implantation, ought also to be followed by good results. As a segment of the sclerotic has been removed, there is no longer any reason why the inside of such a sphere should not fill in with new connective tissue, which, being continuous with that of the orbit, would prevent its extrusion.

"The wound is closed with five silk sutures, and the after-treatment is the same as in evisceration. The local reaction following this operation has in no case been as severe as that following simple evisceration. In fact, I should say that it has been no more severe than after enucleation."

It will be observed that this procedure is in all its essential features the same as the one practiced by E. Hall, except that Dr. Huizinga removes a larger posterior segment of the eye and terminates the operation by the insertion of an artificial vitreous. Evidently by both of these methods it is hoped to secure the advantages of evisceration with and without the insertion of a globe, and escape the dangers, however remote, of sympathetic irritation or inflammation.

Simple evisceration, except that it has a well-defined reputation in the treatment of suppurating panophthalmitis, has not much to commend it as a substitute for enucleation in so far as the subsequent mobility of the prothesis or the cosmetic result is concerned. Doubtless, primarily, the stump after evisceration is superior to that after enucleation; but later it contracts and shrinks, and ultimately transmits to the shell no greater movement than is transmitted by the stump of a well-performed enucleation.

Evisceration, with the insertion of an artificial vitreous, either glass or metal, generally known as Mules's operation, yields a better stump and better cosmetic results than those secured by other operations, except, perhaps, successful cases of abscission. It is unnecessary to point out in detail the advantages of this operation; they are too well known to need repetition here. But the operation fails in a certain percentage of cases (about 20 per cent*) and is not always considered safe, at least not by all surgeons. Thus, many operators would not perform this operation on an eye which has excited or is exciting sympathetic irritation, although others of great experience in this line of surgery—for example, Brudenell Carter, L. Webster Fox, Frank Allport, and Frank Buller—do not recognize this contraindication. The operation should not be performed upon an eye that has excited sympathetic ophthalmitis, and it does not do well, usually, where there is extensive laceration of the sclera after injury, or where the eyeball is much shrunken and its contents have undergone calcareous or osseous change.

Implantation of a glass globe into Tenon's capsule (Adams Frost's operation). This operation, originally suggested by W. Adams Frost* in April, 1886, was performed by him as follows:

"The conjunctiva having been divided in the usual way, each rectus in succession was seized with forceps, divided, and secured by a ligature passed through it and the conjunctiva; the enucleation was then completed, the four recti being held apart by means of the sutures. Mules's sphere was introduced into the capsule of Tenon without any difficulty; opposite recti, with the conjunctiva, were then united across it by passing one of the ligatures through the opposite tendon, the other ligature being then removed."

This method Frost employed in his first case, but thought it defective, as the ball came out on the fourth day. He then suggested that a single suture for each pair of muscles was insufficient, and advised that the muscles should be sutured first with catgut and the conjunctiva afterwards.

This operation has been practiced extensively in England by Mr. William Lang,† in Moorfields Hospital. In his method the artificial globe is placed in the socket, and Tenon's capsule united horizontally by three fine silk sutures. The central stitch is placed at about the point of section of the superior and inferior recti, well away from the cut edge of the conjunctiva, and the others on either side at the same depth. A few horsehairs put under these sutures act as a drain. The cut edge of the conjunctiva is united horizontally by three more sutures.

In 1897 Dr. H. McI. Morton,‡ evidently

*This percentage is obtained from a large number of operations; several operators have reported a much higher percentage of success; a few with a small series of operations have had no failures.

*Middlemore Prize Essay, British Medical Association, 1886; also *British Medical Journal*, 1887, i, p. 1153.

†*Trans. Ophth. Soc. of the U. K.*, vii, 1887, p. 242.

‡*New York Medical Journal*, Oct 30, 1897.

unacquainted with the Frost and Lang methods of implantation, described an exactly similar operation. His method of tying the sutures, however, upon the importance of which he lays great stress, differs from theirs. He thus describes his operation:

"The patient being anesthetized, a circular incision is made in the conjunctiva close to the corneal limbus. The internal rectus is dissected free from surrounding tissues up to its attachment to the globe, and held by a pair of advancement forceps, after which it is cut close to the sclera. A double needle catgut suture is passed from within outward, enclosing the central bundle of the tendon, and tied to its external surface. The ends of the suture, which are cut to a generous length, are now laid aside to the nasal side of the field of operation. The external, the superior, and inferior recti are treated in a similar manner. The globe is removed and a glass sphere is placed in the cavity.

"The sutures holding the externus and the internus are now taken by the operator, the assistant taking at the same time the sutures retaining the superior and inferior recti. Before the second turn is made in the sutures held by the operator, the assistant ties the sutures together, and these are enclosed in the final turn of the knot holding the external and internal recti. The sutures are now enclosed in a common knot at their intersection."

In 1898 J. W. Barrett* suggested a method for inserting the sutures after the introduction of artificial globes into Tenon's capsule, which later he modified in the following manner:

"The operation of enucleation is proceeded with in the usual way. Then the needle is passed in through the conjunctiva about ten millimeters from the cut edge, in the position of the tendon of the inferior rectus. It is then passed from within outwards, in the position of the external rectus, at the same distance from the cut edge, back from without inwards in almost the same position; it is then passed from within outwards and back again, in the position of the superior rectus and of the external rectus, and finally from within outwards, in the position of the inferior rectus, so that the two ends of the suture are close together. The globe is inserted and the suture is tightly tied. The conjunctiva, capsule of Tenon, and tendinous expansion of the muscles are therefore drawn firmly in front of the globe, and about ten millimeters of conjunctiva and capsule are loose in front of suture. The edges of the conjunctiva are now joined by a fine suture."

In April, 1899, Dr. C. A. Oliver* advocated another modification of arranging the sutures in this operation. His method is thus described:

"After freeing the conjunctiva from the globe at the corneal limbus and dissecting it back so as to expose the tendons of the four recti muscles, each of the lateral muscle tendons is secured by a long, continuous catgut suture, and freed from the eyeball. The vertical recti muscles are dealt with in the same way. Working in between the broad loops of catgut holding the ends of the muscles, the eyeball is enucleated without difficulty. The capsular cavity is thoroughly cleansed, and a glass ball which is watertight and about three-fourths the size of the normal globe is placed in the situation previously occupied by the globe. The cut ends of the lateral recti are sutured together, followed by the vertical recti, thus enclosing the sphere within Tenon's capsule. The cut edges of the overlying conjunctiva are brought together by a series of silk threads, and the operative field is covered by a gauze protective bandage upon which iced compresses are placed."

It will be observed that these operations differ from Frost's method only in the manner of applying the sutures.

Usually the implanted ball has been glass, but sometimes celluloid or silver. Fenestrated aluminum spheres were advocated and tried by D. C. Bryant,† and small balls of silk by Bourgeois.‡

The implantation in the orbit of a piece of sponge after enucleation of the eyeball, on the basis of experiments on animals, was originally suggested in 1889 by J. Herbert Claiborne, Jr.,‖ and seven years later was again described and practiced by E. Oliver Belt in 1896.§ This operation has also been tried in this city by S. D. Risley¶, in New York by H. D. Noyes, in Boston by

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* *Intercolonial Medical Journal of Australasia*, 1898, iii, 210.

* *Philadelphia Medical Journal*, 1899.

†*Transactions of the Section on Ophthalmology, A. M. A.*, 1898, p. 117.

‡ *Clin. Ophth.*, Paris, 1898, iv, pp. 111–113.

‖ *Gaillard's Medical Journal*, May, 1889.

§ *Journal of the American Medical Association*, Nov. 7, 1896; *Medical News*, June 27, 1896.

¶ *University Medical Magazine*, September, 1898; *ibid*, May, 1899.

H. B. Chandler, and in Paris by Trousseau.* It is not likely to find a permanent place in ophthalmic surgery. In other words, the late results of this operation, judging from Dr. Risley's case, are no better than those of a well-performed enucleation, while the period of convalescence is too prolonged to be satisfactory. Dr. G. Suker informs me that recently he has practiced with good results a modified Belt's operation; that is, he inserts a small glass globe within the sponge, and then brings the muscles over the stump in pairs, and finally the conjunctiva over this.

Abscission, according to the Critchett, Knapp, De Wecker, or J. H. Thompson methods, or the more recently described operation of Panas, to which he has given the name *complete keratectomy*, furnishes an admirable stump; in fact, from the cosmetic standpoint it yields a better result than any other operation except a perfect Mules. It is, however, an operation which is limited in its applications, and would seem to be chiefly permissible in cases of staphylomatous eyes when all traces of disease in the anterior portion of the eye have disappeared. Even the most experienced operators—for example, Knapp—while they may not have met with sympathetic ophthalmitis after this operation, feel that they must warn that such a contingency is possible, and that calcareous and osseous change may occur in the stump, rendering later enucleation necessary. The operation would seem to commend itself particularly in dealing with staphylomas in children.

While freely admitting the great cosmetic advantages of at least three of the operations which have been advocated and practiced in place of enucleation, one of which I have performed a number of times with the greatest satisfaction, I am far from persuaded that complete removal of the eyeball is likely soon to be driven from the company of ophthalmic operative procedures. Indeed, it is manifestly unjustifiable to state, as Morton has, that enucleation is not a proper surgical procedure. Therefore, if there are any methods of preparing the stump which are an advantage over those which we now possess, it is worth while to review them.

In a well-performed enucleation the operator disturbs as little as possible the relations existing between the conjunctiva, the capsule of Tenon, and the ocular muscles, and shells out the eyeball as cleanly as possible, saving each bit of tissue which may enhance the size of the stump.

Subsequent suturing of the conjunctiva is a common but not universal practice, although few, like Czermak, would be willing to state that it does not hasten recovery and that it occasions diminution of the stump—a statement certainly not in accord with the general experience. The sutures have usually been interrupted ones placed in a horizontal line, or, as Meyer* insists is the only proper method, in a vertical direction, so that the insertions of the external and internal recti shall not be approximated and the lateral rotation of the stump limited. Sometimes one is inserted as is the draw-string of a purse. The last method of suturing was long ago advocated by De Wecker,† who says: "I am accustomed to terminate the operation by passing a needle armed with a thread of waxed silk through the various folds of conjunctiva which cling around the wound. I gather up the pericorneal conjunctiva on the needle, and when these folds have been threaded like a purse I simply draw on the two ends of the waxed thread and cut but do not knot it." It does not positively appear whether the muscles are included in this draw-string or not, but apparently not. For reasons which will appear more distinctly later such inclusion of the muscles is important.

This it would seem H. V. Würdemann‡ realized when he designed his method of closing the conjunctival wound, which is exactly similar to De Wecker's except in this important particular. He thus describes his method:

"After removal of the eyeball, with a large needle and catgut stitch I make a pouch suture by weaving the needle along the cut edge of the divided conjunctiva and Tenon's capsule. In passing the recti tendons, each one is picked up on the needle. This suture acts as a draw-string in a bag." This operation Dr. Würdemann has been practicing for ten years; prompt healing and satisfactory prothesis are claimed.

A few years later G. H. Suker‖ suggested the following method of forming the stump after an enucleation:

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* *Annales d'Oculistique*, cxviii, 1897, p. 417.

**Rev. Générale d'Ophtalmologie*, May, 1898. It is not clear why sutures so placed should have this effect.

†Ocular Therapeutics: edited by Litton Forbes, London, 1879, 512.

‡*Ophthalmic Record*, iii, 1893-94, 177.

‖ *Annals of Ophthalmology and Otology*, iv, 1895, 484.

"Prepare the field of operation as is your custom; divide the conjunctiva as close to the cornea as possible, and dissect it as far back as permissible; do the same with the capsule of Tenon. Cut the recti muscles as close to their insertion as possible. Insert into each rectus muscle a black silk suture at the time it is cut. This is to act as a guide. Proceed now as is customary—*i.e.*, severing the nerve and oblique muscles. After removing the eye, take a thoroughly sterilized catgut suture and pass it through the severed ends of the rectus externus and internus, which have previously been brought together by the silk suture guides. Now bring the superior and inferior recti down and pass a catgut suture through them. Finally suture the four together and remove the silk guides. Thoroughly irrigate your cavity with sterilized water. At the last bring the conjunctiva from above and below over the muscle stump and suture same with a continuous suture, but be sure you fasten it to the muscle stump. The use of the catgut sutures for the muscles is quite obvious, while you may use silk thread or catgut on the conjunctiva. Leave only a small part unsutured at either canthal end of the conjunctiva as a provisional drainage opening."

Dr. Suker maintains that the stump thus formed transmits freer movement to the shell than an ordinary stump, and that it obviates in part the shrunken appearance so often presented by artificial eyes. I have twice operated in a manner analogous to this and the result was satisfactory, although I am unprepared to say whether ultimately it will be more satisfactory than is the result of an ordinary carefully performed enucleation.

In 1897 H. Schmidt in Aachen* suggested a method of enucleation with movable prothesis which I give somewhat in detail by a rather literal translation of his own words:†

"After the conjunctiva had been divided close to the margin of the cornea around its entire circumference and undermined in every direction for a distance of about one centimeter, I caused the globe to rotate downwards by means of a sharp hook inserted into the sclera, seized the superior rectus with a pair of forceps, made an incision into the tendon in front of the forceps, as in performing an ordinary tenotomy, and drew a moderately fine catgut ligature through the tendon or muscle immediately behind the forceps; then I proceeded in the same way with the inferior, external, and internal recti. Next I severed the tendons completely from the sclera in the same order, and thus retained the globe in its normal position up to this stage of the operation and materially facilitated the prompt finding of the insertions. After I had by means of lateral incisions exposed the muscle for a distance of ½ to ¾ centimeter backward (from its insertion), I caused it to be drawn lightly away from the globe in a vertical or horizontal direction by means of the catgut loop, so as to stretch the overlying conjunctiva, seized the latter and made an incision about ¾ centimeter in length with straight scissors at a point corresponding exactly to the middle of the muscle. Then I divided the optic nerve and the insertions of the oblique muscles and removed the globe. After arresting the bleeding, I first sewed the anterior extremity of the superior rectus into the conjunctival incision, passing each end of the suture through a separate needle and inserting the needles on either side of the angle of the wound from (the side of) the wound surface, and bringing them out about two millimeters above the angle of the wound and at a distance of three to four millimeters from each other. The sutures were tied at once, one end being left longer than the other and the short end only cut off. I proceeded in the same way with the three other muscles, with only this difference, that I sewed in the externus and internus under slight tension and therefore lengthened the incision in the conjunctiva somewhat, if it was found to be too short. Then I used the long uncut ends of the sutures to close the conjunctival incisions with a continuous suture, beginning at the angles of the wounds, and tied the corresponding ends together. The background of the conjunctival sac now presented a cross formed by the vertical and horizontal sutures, at the four extremities of which the straight muscles were inserted at intervals of one to one and one-half centimeters from one another. Finally I packed the conjunctival sac with a narrow strip of gauze in order to force the conjunctiva to lie smooth in every direction, and

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* *Monatsbl. f. Augenheilk.*, xxxv, 1897, p. 383.

† This translation is given so that each reader may make his own interpretation; because, as Priestley Smith says (*Ophthalmic Review*, xvi, 1897, p. 389), the description of the method is somewhat difficult to understand. De Wecker also found points of obscurity in the description and wrote for further information, which is given in a letter by Schmidt published in the *Monatsbl. f. Augenheilk.*, xxxvi, 1898, p. 67.

applied a binocle, which was not changed until the fifth day, when it was replaced by a monocle. The wound healed in from seven to eight days, when the patient was discharged; the time required was, therefore, not much longer than after a simple enucleation."

Dr. H. F. Hansell informs me that he has operated according to Schmidt's method with entire satisfaction.

Acting on Schmidt's suggestion, Priestley Smith * has described a method of suturing the tendons to the conjunctiva after enucleation, as follows:

"The speculum having been introduced, the globe is rotated strongly outwards either with forceps or, more conveniently in some cases, by pressing the convexity of a strabismus hook deeply into the sulcus at the external canthus. A narrow horizontal fold of the conjunctiva over the internal rectus is then pinched up so as to include the subjacent connective tissue and muscle, and a black silk suture is carried through these structures by means of a curved needle. To pinch up the muscle it is necessary to use very fine forceps with sharp teeth, like those introduced by Stevens, of New York, and to press the tips firmly into the tissues. The suture is then tied firmly, but not too tightly, with a double knot, and cut off not too short. A second suture is applied in like manner to the external rectus. The upper and lower recti may be treated in the same way, but this is of less importance. The enucleation is then carried out with the precautions above referred to, and with special care not to cut the sutures while severing the attachments of the tendons. Lastly, the conjunctival aperture may or may not be closed by one or more vertical sutures."

The effect of this operation, according to its author, is to give greater mobility to the conjunctival bed, at least during the first few days after the operation, than is usual after ordinary enucleation. Incidentally it may be remarked that Mr. Smith commends Snellen's thickened artificial eyes.

In my earlier surgical experience I was unaccustomed after enucleation to employ sutures, and I must say that in many cases the result was admirable, but in many others the enophthalmic appearance and staring eyeball were most distressing. For some years I have practiced suturing of the conjunctiva in the ordinary manner, and for the last year have made these sutures retain the muscle in contact with the conjunctiva, very much after the manner described by Schmidt and Priestley Smith. Briefly, I operate as follows:

After insertion of a speculum which widely separates the lids, the conjunctiva is divided as close as possible to the corneal margin; each rectus tendon is next exposed and caught upon a hook, precisely as in the operation for strabismus, and is secured with a double-armed black silk suture, which is knotted upon it. The eyeball is now enucleated with the least possible disturbance of the relations between the conjunctiva and the underlying structures, and a small ball of sterilized gauze is inserted into the capsule of Tenon, precisely in the manner in which a Mules sphere would be so placed in the operation of implantation. Each rectus tendon is now drawn forward to the edge of the cut conjunctiva and securely fastened with the ends of the same suture which had originally secured the tendon and which have been left long. That is to say, the tendon is brought forward precisely as it would be in the operation of advancement. The wad of sterilized gauze, which has served its purpose of checking entirely the hemorrhage and keeping for the time being the cavity bulged out as it was when occupied by the globe, and therefore facilitating the advancement of the tendons, is now removed, and the edges of the conjunctiva and capsule of Tenon are united with interrupted sutures.

Primarily the movement of the conjunctival bed is certainly very much greater than after ordinary enucleation, as Schmidt, Suker, Priestley Smith, and all others who have so sutured the tendons have found. Indeed, this is to be expected, as we know that the capsule of Tenon moves freely with the movements of the eye, but that the eye does not move freely in the capsule. Now although the eye is gone, the movement of the conjunctival bed is brought about by the contractions of the straight muscles which have been sutured to it. Certainly it is reasonable to suppose that sutures, which may be applied in any of the ways described, will prevent the tendons from retracting, which they will do to the extent of seven to ten millimeters (Bock, Meyer) after ordinary enucleation. This retraction Meyer * thinks he prevents without suturing the tendons by great care in removing the eyeball, and thus pre-

* *Ophthalmic Review*, xviii, 1899, p. 123.

* *Loc. cit.*

serving intact the adherence between the conjunctiva and the surface of the muscles. Whether the later results of these operations will be no better than after enucleation I cannot say, as sufficient time has not yet elapsed to establish this point.*

The rotations of the shell placed upon the stump of several such cases exceed those usually obtained after ordinary enucleations, are practically equal to those after the best eviscerations, and are better than those after some eviscerations; but they are not equivalent to those after the best Mules operations, although they quite equal those after some Mules operations. If these facts are put in a tabular manner, we have the following:

	Out.	Up.	In.	Down.	Remarks.
Average rotations	45	31	50	55	Average of Landolt's and Stevens's measurements.
Rotations after enucleation with suture of tendons	10	22	20	50	Average of three cases.
Evisceration	15	18	23	35	Average of Truc's and my measures.
Enucleation without suture of tendons	15	15	12	25	Average of Truc's and my measures.
Mules's operation	25	30	23	58	Average of my cases.

But the transmission of increased movement to the shell after a Mules operation is only one of the gains in the enhanced cosmetic result, the other two important ones being the preservation of the natural contour of the lids and the absence of unhealthy conjunctival secretion.

It seems to me after enucleation performed in the manner just described, that the upper lid sulcus is not so pronounced and that there is less abnormality of conjunctival secretion than after the ordinary operation for complete removal of the eyeball.

In conclusion I wish to express my belief, which is held by many other surgeons, that even omitting all forms of morbid growths, the operation of enucleation in many instances cannot be banished from the list of ophthalmic operations, and that while at the present time such operations as evisceration with the insertion of an artificial vitreous, abscission, and perhaps the implantation of various forms of globes in Tenon's capsule, furnish better cosmetic results when they are successful than the best performed enucleation can give, there is reason to believe that with improvement in artificial eyes and improved technique in preparation of the stump for the reception of these eyes, an almost equal improvement may be expected after so-called simple enucleation.

*In one case five months after the operation the original good result remains.

To remove the sunken appearance of artificial eyes which have been placed upon a poor stump after enucleation, Dr. L. Webster Fox practices his operation of implantation of a glass ball in the socket, and has reported most gratifying success. It would seem that exactly the same effect ought to be secured by filling the concavity of the ordinary shell with wax or similar preparation, as has been done by Snellen,* Ira Lyons,† and others, or with the eyes which have been described by Dr. Snellen.

If, however, better results can be obtained by Fox's operation, there is no reason why it should not be more frequently performed.

A CASE OF INOPERABLE CANCER OF THE VAGINA TREATED WITH LOCAL APPLICATIONS OF METHYL BLUE.

By H. R. Coston, M.D.,
Fayetteville, Tenn.

On July 12 last I was called several miles into Alabama to see Mrs. L., in consultation with Dr. A. A. Hatcher, of Huntsville, Ala. The history of the case is as follows:

Mrs. L. is fifty-two years old, the mother of two children, the youngest of whom is twenty-eight—an epileptic; the first-born died in infancy of "bowel complaint." The patient passed the climacteric at forty-seven—five years ago—without trouble. Father died of pneumonia, mother of "heart disease;" one maternal aunt died of cancer of the breast. Mrs. L. has always been delicate, but fairly healthy; never strong, but never confined to her bed and but seldom to her room. About January 1, 1899, she began to notice, at intervals, slight discharges of blood or "bloody water." She consulted her family physician, who told her that the discharge was possibly only a slight return of the menses and not to bother about it. He failed to make a vaginal examination, and hence lost the golden opportunity to save the patient. When I was called July 12—six months after first symptoms—I

Klin. Monatsbl. f. Augenheilk., xxxvii, 1899, p. 71.
†*Ophthalmic Record*, viii, 1899, p. 522.

found the discharge was continuous, some days very severe, while other days it would be only a stain.

Upon digital examination I came upon a roughened and infiltrated area about one inch within the vulvovaginal orifice, and this surface extended around the entire canal up to and involving the cervix and os uteri. This surface was very fragile and bled profusely because of the examination. The left broad ligament was greatly thickened and the inguinal glands enlarged and sensitive. She complained bitterly of the pain incident to the examination. I introduced a bivalve speculum, but owing to the extremely fragile nature of the growth I was unable to open the instrument sufficiently to bring the os uteri into view. The portion of the vaginal walls visible was red, bleeding, and very fragile, breaking down under the finger.

The appetite was fairly good and the bowels and kidneys acting about as usual, but she was markedly cachectic.

The disease had extended to such a degree that operative measures were out of the question. I gave her, at this first visit, a wash of potassium permanganate, and a tonic of sulphate of strychnine and iron.

Two weeks later the patient was removed to Fayetteville, and after explaining to the husband that cure was beyond hope, I began the local use of a three-per-cent solution of methyl blue in equal parts of alcohol and water. I made an application of this solution every second day, swabbing it over the entire diseased area as best I could. The hemorrhage began to decrease in quantity from the first application, and soon the infiltrated area commenced to grow softer and the tissues became less fragile and permitted an ocular view of the os uteri. In the meantime I was giving her tonics and alteratives.

When she left for home two months later the hemorrhage had almost entirely ceased. The ulcerated surface had healed—cicatrized—except in the left fornix; in that place there was a small area that refused to heal, and I believe this ulcerated spot was continuous with the infiltration of the broad ligament.

At this writing—four months from beginning treatment—the patient is in very fair condition; sometimes she will go an entire week without a stain, when there will be a slight hemorrhage. The thickening in the broad ligament is, of course, increasing. She is, however, a few pounds heavier now than when treatment was first begun.

I do not bring methyl blue forward as a curative agent for cancer, but as a local application in inoperable cases this one case would indicate that it is very excellent. Certain it is that the hemorrhage was greatly reduced—almost stopped—and the superficial ulceration healed to a great extent.

The patient will soon die, however, from systemic infection.

The local use of methyl blue is not original with me, and I have lost the reference to the article from which I obtained my information, and hence I am unable to give the name of the originator. I read of it in the THERAPEUTIC GAZETTE.

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*THE ANTITOXIC AND SURGICAL TREATMENT OF DIPHTHERITIC LARYNGITIS.**

BY JOSEPH MULLEN, M.D.,
Member of the American Laryngological, Rhinological, and Otological Society, Houston, Texas.

The antitoxic and surgical treatment of laryngeal diphtheria is of the utmost importance to us as surgeons and laryngologists. With but few exceptions the nosology of this disease is generally conceded to be diphtheritic laryngitis in contradistinction to membranous croup, and in my opinion this should be so understood in the discussion of the disease. Strange to say, but nevertheless true, diphtheritic laryngitis is the only disease of which I have any knowledge in which therapeusis is gradually but certainly supplanting surgery. One has only to consult mortuary statistics of to-day and compare them with those of five years ago on this disease of high mortality, and especially notice the large number of cases in which tracheotomy was at one time performed, and observe the small number of cases in which this operation is now performed, in order to realize and appreciate the verity of the above statement. I need no statistics to maintain this position other than my own personal observations, which have constantly verified and strengthened my belief.

With the universal introduction of antitoxin in my practice the number of tracheotomies has greatly fallen off, and the number of intubations has largely increased. In the medical treatment of diphtheritic laryngitis I desire to make an appeal for larger doses of antitoxin, the specific for the cure of this dis-

*Read at the South Texas Medical Association, Cuero, June 13, 1899.

ease. Antitoxin, like every other medicinal agent, should be given for effect, and most assuredly not for specified dosage. If I interpret correctly the progress in the use of antitoxin, I would say that larger doses are being administered more universally now than at any time within the past five years. In my own practice I have been gradually increasing the doses in all cases of laryngeal diphtheria—in other words, I am injecting it for effects, and until evidence of improvement is noticed I push the serum. The same principle should govern the administration of antitoxin as that which guides us in giving strychnine and atropine in the treatment of shock—*i. e.*, for physiological results. While the physiological effects of antitoxin are not as well understood as are those of strychnine and atropine, they are, however, sufficiently understood to serve as a reliable guide in the exhibition of this specific serum.

The German and English physicians are accustomed to giving much larger doses than are we of this country—too large I fancy for safety and security. They nevertheless report a large decrease in the death-rate as the result of these enormous doses of antitoxin.

Dosage.—Some surgeons administer from two hundred and fifty to five hundred units as a prophylactic, while others use as small as one hundred units. It is indeed questionable if any amount under five hundred units has any effect in insuring immunity of any duration. The dosage of antitoxin should be controlled relative to the number of days the diphtheritic laryngitis has been in progress, and the degree of toxemia and dyspnea with which the patient suffers. In the very early stage of the disease opinion is divided as to the administration of one large initial dose, or whether medium size and often repeated doses are the better way of giving the antitoxin. After the fourth day of the disease, however, when the patient is suffering, if the case be at all severe, from the diphtheritic poisons, or probably those due to mixed infection, with marked obstruction to the laryngeal breathing, both symptoms of serious import, few physicians would hesitate to administer large doses of antitoxin—on an average twenty-five hundred to four thousand units—and repeat the dose at an early hour if necessary. At the London University College Hospital, during the year 1895, about one thousand normal units was given; the average in 1896 was seven thousand two hundred units; in 1897, seven thousand eight hundred units; and now it is the custom on admission to administer a dose of not less than six thousand normal units. The second report of the Metropolitan Asylum's Board shows that "with the strongest serum supplied, eight thousand units can easily be given at one injection. With such a serum the rule must be to give, in serious cases, eight thousand to twelve thousand units every twelve hours for twenty-four or forty-eight hours." We believe that one of two methods should be observed in giving antitoxin—either a large dose, say two thousand to four thousand units, or smaller ones from one thousand to twenty-five hundred units, at intervals of eight hours each, closely watching the patient for developments.

According to the Pediatric Society's report, "for a child over two years old the dosage of antitoxin should be in all laryngeal cases with stenosis, and in all other severe cases, fifteen hundred to two thousand units for the first injection, to be repeated in from eighteen to twenty-four hours if there is no improvement; a third dose after a similar interval if necessary.

Time of Dosage.—All authorities agree the earlier antitoxin is administered the better the prognosis and the milder will be the clinical course of the disease; and the longer the case is without antitoxin the graver the prognosis, the higher the mortality, and the more intense the clinical severity of the case. This is further corroborated by the report of the Board of the Metropolitan Asylums: "According to the days of the disease the mortality rises from 5.2 per cent in those who come under treatment on the first day to 31.7 per cent in those admitted on the fifth day of the disease and after."

In reference to the mortality as regards age, the death-rate progressively diminishes from 32.2 per cent among children under five years of age to only 4.2 per cent at ages over twenty. In diphtheritic laryngitis the *early* administration of antitoxin where stenosis is not marked may render intubation unnecessary as well as tracheotomy also. The report above quoted claims a great reduction in the mortality of cases brought under treatment on the first three days of the illness. The records of the University College show a mortality according to the time of dosage. Among those admitted from the first to the fourth day the death-rate in 1891 was 48.7 per cent, in 1894 38 per cent, and in 1897 11.7 per cent; among those admitted after the fourth day it was in 1891 38.1 per cent,

in 1894 43 per cent, and in 1897 28.6 per cent. These statistics demonstrate the importance of early serum interference in this disease.

Untoward Effects of Antitoxin.—The effects of diphtheritic antitoxin have unmistakably been highly exaggerated, especially by the lay press, and erroneously interpreted by some members of the profession. A rash occurs usually after the fifth day in ten per cent of the cases. It is generally erythematous in character and is followed by desquamation. It closely resembles the rash of scarlet fever, in very serious cases where there is no evidence of the physiological action of the serum. I interpret the appearance of the rash as indicating a good prognosis and enhancement of the patient's chances for recovery. I have observed at least ten desperate cases in which recovery immediately followed upon the appearance of the eruption, the evidencing symptom of reaction, lowered pulse-rate and temperature, with an expressed desire for nourishment; also thinning and easy expulsion of the diphtheritic membrane. These cases were moribund; tracheotomies had been performed, producing only a temporary amelioration of the symptoms with a gradual return of all symptoms intensified, at which time the children were pronounced beyond assistance. These represent a class of cases of diphtheritic laryngitis in which according to the above clinical history a large dose of antitoxin (three thousand units) producing an eruption heralds the recovery of the child. The eruption in these severe cases unquestionably is an evidence that an excess of antitoxin is being gotten rid of by the skin, and the improvement suggests the neutralization of the diphtheritic toxins. A slight rise of temperature occurs in a small percentage of cases; fever of two to four degrees may also accompany the rash. I have never seen swelling of the joints occur during or after the eruption. I recall one case in which less than ten minutes after an injection of two thousand units both eyelids became markedly dropsical, almost producing closure of the lids. I have had the opportunity to observe three cases in which there was complete suppression of the urine for twenty-four hours. All three cases were seen in the fifth day of the disease, and at this stage it was not clear whether the suppression was due to the diphtheritic poison or antitoxin, or both. The cases recovered.

It is hardly necessary to repeat what has already been said in reference to the size, repetition, and early administration of antitoxin. However, a word will be sufficient to mention the marked influence of antitoxin upon the disease in reducing the severity of the symptoms, prolonging life, and reducing the mortality. In diphtheritic laryngitis the early giving of antitoxin frequently converts a tracheotomy case into one of intubation, or might possibly dispense with both operative procedures. It undoubtedly modifies the severity of cases in which tracheotomy has been performed; it enables the surgeon to remove his tracheal and intubation tube much earlier than before the introduction of antitoxin. In those non-antitoxic days I have frequently seen two and three distinct membranes form and be cast off from the larynx in the course of the disease. In these patients it required the instant removal of the tracheal tube to save their lives. Since the introduction of antitoxin the reforming of a second membrane becomes a curiosity. I have observed patients in whom the laryngeal secretions had become scanty and the parts presented a parched appearance, breathing dry, quick, and difficult; and after an injection of antitoxin the secretions became moist and profuse, almost sloppy, while the breathing became moist, slow, and easy. The membrane came away in large pieces, and the patient's condition continued to improve to convalescence.

The medicinal treatment of diphtheritic laryngitis may be divided, for convenience sake, into local and systemic. I never insist upon local medication, because I rarely ever see the case in the early stage. The patient has had either sufficient and competent local treatment in the form of antiseptics or astringents, sprays or mops, or is entirely too weak to have gargles, sprays, or mops continued, so as a rule at this stage I do not recommend or insist upon their use for fear of increasing the asthenia. In any stage, especially in the early stage, gargles do very little good, as they only accidentally reach the larynx. For this reason I place more faith in inhalants—for instance, equal parts of tincture of iodine and carbolic acid, one-half to one drachm in a kettle of boiling water, and have the steam turned into an improvised "croup tent." I have found the following device to answer all practical purposes, especially when nothing better can be obtained: Take an ordinary gasoline stove and place on it a common tea-kettle containing the above mixture. Light the stove and ask for one or two lengths of

stovepipe; adjust one end of the pipe over the mouth of the kettle and have the other placed under the "croup tent" near the patient's head, so he may get sufficient of the fumes. This makes a useful and inexpensive apparatus, requiring only a few minutes to adjust.

In the systemic treatment of diphtheritic laryngitis there are practically two remedies which meet all indications. The first is alcohol in some palatable and available form; the other is strychnine. Alcohol in the form of whiskey, or preferably brandy, should be given for effect, not dosage; in other words, it should be pushed at short intervals until the physician or nurse detects the odor of alcohol in the patient's breath. I believe we are inclined not to give enough alcohol in the treatment of diphtheritic laryngitis, for these cases require constant and strong stimulants. Strychnine should also be administered until the patient shows evidence of its physiologic effects, and kept up until the heart and respiration no longer call for its assistance. Stimulants in this disease should be insisted upon, and their importance impressed upon the nurse in attendance. I consider them next to antitoxin in the treatment of diphtheritic laryngitis, especially as they sustain the vitality of the patient either until the antitoxin has had sufficient time in which to act or instrumental interference is accomplished.

Intubation.—Since the introduction of antitoxin in the treatment of diphtheritic laryngitis the performance of intubation has yearly increased and is gradually but unquestionably replacing tracheotomy. It is indeed gratifying that such is the case, as it substitutes for a complicated and dangerous operation one that is simple to perform and not dangerous to life. Intubation is the operation of selection in diphtheritic laryngitis, and when possible should always precede and forestall opening the trachea. It is decidedly much easier and safer to perform than tracheotomy. It can be done quickly and does not as readily frighten the family and deter permission for its performance as does tracheotomy. There are, however, two dangers attending intubation. One is quite serious but seldom occurring, that of pushing the laryngeal diphtheritic membrane down into the larynx and suffocating the patient; the other is not at all serious but delays the object of intubation—the dropping of the tube into the patient's stomach.

I shall not weary you with a description of the operation, as you are all doubtless thoroughly familiar with its technique. Do not hesitate to press the epiglottis, with the index-finger of the left hand, and the base of the tongue forward and downward in order to freely enter the tube in the larynx; and in extraction never attempt to extract without using the finger as a guide resting upon the upper end of the tube while introducing the extractor. The indications for intubation are deep epigastric recession during inspiration, labored and prolonged expiration, extreme restlessness, spasmodic attacks of deficient breathing, and persistent cyanosis. In cases of this character intubate at once, and immediately afterwards give a large dose of antitoxin—two thousand to four thousand five hundred units—rather than administer antitoxin first and wait for effects.

If the child does not show evidences of improvement after the intubation tube has been in the larynx for a short time, remove and perform tracheotomy. This operation of necessity, once so common for diphtheritic laryngitis, has now become less frequently performed, owing solely to the introduction of antitoxin and intubation. The indications for the performance of tracheotomy are the same as those for intubation, intensified, in cases where intubation with antitoxin has failed to relieve the dangerous symptoms, and in cases that are seen late with or without the administration of antitoxin; also in cases where the previous diphtheritic membrane is supposed to extend low down into the trachea, when intubation would be useless. It should be performed without any hesitancy in all very extreme and moribund cases, whether antitoxin has or has not been previously administered. Antitoxin at this stage should be vigorously pushed, and frequently surprising and unexpected results are obtained.

I shall not detain you longer with a description of the operation; suffice it to say that I prefer the low operation, that of opening the trachea low down on a line with the upper border of the manubrium. In this southern country, as you well know, the mortality of diphtheritic laryngitis is very high, presenting a malignancy rarely seen in a northern climate. In these cases the diphtheritic membrane inclines to go lower in the trachea—hence for the latter reason a low tracheotomy is much preferable to the high operation, especially so as the shock occasioned by either procedure is for all practical purposes about the same.

The Therapeutic Gazette

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Leading Articles.

A SYMPOSIUM UPON TYPHOID FEVER.

We publish in this issue of the THERAPEUTIC GAZETTE three valuable papers upon the treatment of typhoid fever.

The question of cold baths has been gone over so thoroughly and so frequently that it is not necessary for the evidence concerning hydrotherapy to be reiterated at this time. It seems, on the other hand, more important that clear ideas shall be had as to the important subjects of feeding, stimulation, and the employment of intestinal antiseptics. For these reasons the article of Dr. Packard, who is one of the physicians to the Pennsylvania, Philadelphia, and the Children's Hospitals, upon the important subject of diet will, we believe, prove very interesting. As the readers of the THERAPEUTIC GAZETTE know, we have from time to time strongly urged in our columns that typhoid patients should be given other articles of food than milk, and we are glad to find that Dr. Packard agrees with us in this belief. Of course, we do not believe in overfeeding in this disease, nor in the administration of indigestible articles, but certainly more than milk alone can often be given with advantage.

The remarks of Dr. Musser, who is Professor of Clinical Medicine in the University of Pennsylvania and one of the physicians to the Presbyterian Hospital, with regard to the use of stimulants since the introduction of the cold bath, are very interesting, as are also those which he makes with regard to the necessary doses in different cases.

The remarks of Dr. Anders, Professor of the Practice of Medicine in the Medico-Chirurgical College of Philadelphia, deal with a most important and much debated point in the therapy of this disease.

It is by such skilful expressions of existing opinion as we present in this issue with regard to typhoid fever, and in other recent issues with regard to cholera infantum and puerperal eclampsia and similar affections commonly met with by the practitioner, that the best views are disseminated amongst our readers.

COLD BATHS IN TYPHOID FEVER IN CHILDREN.

Those of the profession who have read the columns of the THERAPEUTIC GAZETTE during the last few years are well aware of the fact that we have, from time to time, pointed out the great value of cold baths to patients suffering from the various infectious diseases, more particularly typhoid fever. On the other hand, we have no less constantly urged that the use of the cold bath should not be by routine method, but that its severity and character should vary with the needs of the individual patient. We have pointed out the absolute necessity for obtaining, in every case where cold is applied in typhoid fever, with the aid of active friction, complete reaction, and the production of a healthy red glow on the skin whenever possible. We have also asserted that we believe in the majority of cases this can be obtained by sponging with ice water, or better still, in some instances, by rubbing over the patient's surface a piece of ice, while the assistant thoroughly rubs the patient's skin to bring the blood to the surface where it may be cooled.

In a very considerable experience we have found that patients almost invariably prefer this method of reducing their temperature, rather than by plunging in a tub at 70°, and we have never had the blueness of the lips

and extremities and the persistent shivering developed by this method which is so frequently produced by the plunge. On the other hand, we have again and again found that this method reduces the temperature even better than plunging. In a recent issue of the THERAPEUTIC GAZETTE we have described the results to be obtained by the use of cold in typhoid fever. It is not necessary, therefore, at the present time to speak further on this matter. It is our object at the present moment to point out that there is one class of patients who, as a rule, do not require and do not do well under the use of the cold plunge, viz., children under puberty who are suffering from this disease. While it is true that at this period of life the temperature may be quite high, it is also a well known fact that typhoid fever in children is by no means as serious a disease as it is in adults, and that in the great majority of cases recovery is to be looked for, unless severe complications not directly connected with the disease come on. Further than this, the small bulk of the child's body permits us to apply cooling lotions with friction, and this serves to rapidly reduce the temperature whenever such reduction is necessary, and we do not subject the tender organism to an immersion in a cold bath which may not only produce severe shock but perhaps also lower the temperature to a dangerous degree. An adult patient uttering his protests and shivering in the plunge bath in typhoid fever is sufficiently pitiful, but the spectacle of a little child so plunged is scarcely less than heartrending, and while the appearance of the child or its protests ought not to control us if the procedure is wise, it must necessarily make us hesitate before insisting upon the rigid carrying out of the Brand method.

Our attention has been called particularly to this matter by an article by Glénard which has recently appeared in the *Revue Mensuelle des Maladies des Enfants.* In this paper Glénard advocates the use of the cold bath in children, and cites statistics in moderate numbers which he believes support his advocacy of this plan. We do not think these statistics possess the value they would possess if they dealt with the occurrence of typhoid fever in adults, simply because, as already pointed out, this disease is usually very mild in children. Further than this, we do not think that Glénard has the majority of the profession with him when he makes this recommendation.

In this connection we may also call attention to the opinion expressed by Prof. J. P. Crozer Griffith in the new edition of the System of Therapeutics which has just been published by Lea Brothers & Co., of Philadelphia. Although writing upon the subject of other diseases than typhoid fever, as they occur in childhood, he has thought it necessary to add a note to the end of his article protesting against the universal use of the cold bath in children, and a similar protest is also to be found in the article upon typhoid fever, which has been contributed to this System by the author of this editorial.

It seems difficult at times to have one's position with regard to a therapeutic question clearly understood. Our position may be, perhaps, restated, viz., that the application of cold water and friction is a most valuable method of treatment in typhoid fever, but that its universal routine application in the form of the plunge bath, particularly in children, in every case of typhoid fever is not rational; that some patients require the plunge, others the ice rubbing; still others require simply sponging with cool water and friction. Our position is not that of one who wishes to antagonize the cold bath in typhoid fever, but rather that of one who wishes to have its application rational in every respect.

NEURITIS PRODUCED BY ARSENIC.

For many years it has been a well known fact among medical men that artisans or other persons exposed to the fumes of arsenic may suffer from chronic arsenical poisoning, and that the chief manifestations in this condition may be due to a peripheral multiple neuritis caused by the selective affinity of the arsenic for the nerve trunks.

It is also a well known fact in the profession that the nearest approach that we have to a specific for the treatment of chorea and St. Vitus's dance is arsenic in one of its forms, and skilful physicians have also known that chorea can be treated with arsenic successfully only when this drug is given in full and ascending doses.

Because of the fact that persons rapidly develop a tolerance of arsenic it is often possible to give very large doses without developing disagreeable symptoms, but within the last few years numerous instances have been recorded in which gastrointestinal tolerance of the drug was apparently developed until massive doses could be given,

which doses being absorbed not only benefited the chorea, but produced neuritis. The most recent report of cases of this character with which we are acquainted is that which has recently been made by Dr. Railton, one of the physicians of the Manchester Clinical Hospital for Women and Children, in the *Medical Chronicle* for February, 1900. In this paper he quotes the history of three cases in which the administration of full doses of arsenic produced neuritis, and in some of these instances the results were very severe. As he well adds, a further lesson to be learned from these cases is that there is risk of disastrous results following the treatment of chorea with arsenic if the remedy is given in doses which amount in the aggregate to as much as six grains of arsenous acid a day. Of course, these doses are exceedingly large as compared with those that are commonly given in America, but as Dr. Railton points out, some English physicians have at times given doses equivalent to this with very extraordinary success in the treatment of obstinate cases of chorea.

CONDITIONS WHICH MAKE THE USE OF DIPHTHERIA ANTITOXIN IMPERATIVE.

It is not necessary for us to call attention to the fact that diphtheria antitoxin should be used in every case of diphtheria, and in every case of membranous croup—in every case of diphtheria because it has been proven beyond all doubt that this remedy affords us a better means of producing a cure than any other method which has ever been introduced; and in membranous croup because the great majority, if not all such cases, are in reality diphtheritic in character. As the antitoxin is devoid of harmful influence there is every reason why it should be employed, and no reason why it should not.

While the profession has generally recognized the immense value of this remedial agent in diphtheria of the pharynx and fauces, and while many of them recognize also the fact that in laryngeal and nasal diphtheria it affords the only satisfactory method of treatment, we desire at this time to call attention to the fact that in a certain proportion of the cases of diphtheria the disease does not at first attack the pharynx and fauces, but begins upon the nasal or laryngeal mucous membrane, and so influences the larynx that it speedily produces symptoms of respiratory obstruction in addition to those which are caused by the absorption of the toxin of the disease. Many of these patients become distressingly ill before the fact is recognized that the stridor and husky voice are due to laryngeal infection, because the membrane cannot be seen unless the physician is skilful in the use of the laryngoscope.

The point we wish to make is that in all these cases where laryngeal obstruction rapidly comes on in a young child, and where a laryngoscopic examination is not possible, the physician should at least employ diphtheria antitoxin tentatively, and at the same time in sufficient quantities (500–1000 units) to really exercise a therapeutic influence.

Stridor and laryngeal obstruction may, of course, arise from spasmodic croup, or it may complicate rickets, but on the other hand it is frequently met with as a result of laryngeal disease of the type that we have named.

Our attention has been called to this important matter both by our own experience and by letters received from various correspondents, notably one which has come to our hands from Dr. J. A. Jackson, of Madison, Wisconsin.

SURGERY OF THE STOMACH.

The accessibility of the stomach, its tolerance to manipulations and operations, and the safety of exploratory abdominal openings, have enabled surgeons to devise means for the correction of many of the diseases to which this viscus is subject, and which would be more generally applied had the diagnostic acumen of the physician kept pace with the mechanical proficiency of the operator.

For many years the journals have contained a constantly increasing number of reports of successful intervention for the relief of cancer, ulcer, dilatation, and obstruction.

In a symposium upon the subject of diseases of the stomach and their treatment, both medical and surgical, Osler (*Philadelphia Medical Journal*, Feb. 3, 1900) contributes an article showing by case reports that carcinoma beginning in the stomach may be extensive and wide-spread with practically no symptom. He states that there are three groups of cases of latent carcinoma: the first comprising cases in which the symptoms are those of gradual enfeeblement without any indication of local disease; the second com-

prising cases in which, with an absence of gastric symptoms, the lesions of associated disease seemed sufficient to account for the condition; the third comprising cases in which the metastases completely mask the primary disease.

Hemmeter holds that the early diagnosis of gastric carcinoma is possible in a certain number of cases by a careful microscopical examination of fragments of gastric mucosa obtained by curettage.

Brigham reports the after-history of total extirpation of the stomach, practiced two years ago, for the relief of carcinoma. The duodenum was united to the esophagus without undue tension by means of the Murphy button, which was never found afterward; though the *x*-ray showed it turned sidewise a little to the left of the spinal column, near the eleventh dorsal vertebra. The patient has remained in good health ever since.

MacDonald gives a technique for this operation and states that the patient upon whom he operated more than two years ago is perfectly well and can do a good day's work, though he has no stomach.

Papers upon a somewhat more conservative treatment are contributed by Wier and Mayo. The former, discussing the newer applications of gastroenterostomy, states that of late years this operation has become an important factor in those stomach lesions where rest to the organs is of importance. It is now advocated for the relief of obscure gastralgias, hemorrhages from ulcers, the ulcers themselves, and that somewhat foggy condition known as atony without pyloric narrowing.

Tricomi gives fifty cases of gastric ulcer, which had been treated ineffectually by medical means, subjected to gastroenterostomy, with but six deaths.

Doyen reports forty-six cases treated by gastroenterostomy. In about one-half of these the pyloric spasm was attributed to a distinct ulcer and the other half to hyperchlorhydria. In many of these patients it was noted that under chloroform anesthesia the spasm abated. Carle resorted to a gastroenterostomy in similar conditions eighteen times with success, the hyperacidity before operation subsequently disappearing. In his last twenty cases, using a Murphy button with a posterior stomach-opening, he had not lost a single case.

Hartmann, in 1898, presented twelve cases of gastroenterostomy performed for the relief of hemorrhage of the stomach. Eight of these died and four were cured. Of the nine instances in which this measure has been applied for acute hemorrhage since that time, seven have been saved from death and the ulcer has been cured. In two others where this operation was done in the interval, both were cured.

In performing the gastroenterostomy, Wier practices the method suggested by Häcker and Jaboulay and Braun. This consists in first making an enteroanastomosis between the two legs of a chosen loop of the jejunum, which loop is then fastened to the posterior wall of the stomach. Two Murphy buttons are used in this procedure.

Mayo states that carcinoma of the pylorus forms sixty per cent of the stomach cancers, and a sufficient number of successful pylorectomies have passed the three years' limit to give the operation a standing in surgery. He has advised a method of performing pylorectomy and partial gastrectomy which in three cases proved rapid and comparatively safe. It consists in a median incision above the umbilicus, and if needed a cross-cut of the rectus muscle and double ligation and division of the necessary amount of gastrohepatic omentum. This allows the pylorus and lesser curvature to be delivered, after which the gastrocolic omentum attached to the malignant area is doubly ligated and divided. The diseased part is isolated by a piece of gauze and caught from each side by forceps. A circular cut is then made completely around the healthy portion of the stomach to the mucous coat. The muscular and peritoneal coats are stripped back, and the mucous coat is cut inch by inch and at once closed with the continuous suture. A second continuous suture of catgut of the muscular coat rolls in the muscular layer, while outside this a good silk Lembert of the peritoneum and muscular coats protects and rolls in the two first rows of sutures.

The ends of the tied omentum are then sutured to each other and to the suture line in the stomach, thus anchoring the stomach and further reenforcing the point of closure in it. The duodenum is then amputated at a healthy point and buttoned with a Murphy button to the anterior wall of the stomach.

Winslow reports a case of dilatation of the stomach treated by gastroplication, holding that this procedure is useful in cases due to atony without organic stenosis. The anterior wall of the dilated stomach was doubled on itself and retained with two rows of silk sutures, the greater curvature being sutured almost to the lesser curvature. The size

of the organ was reduced to one-half. This was followed by nephrorrhaphy through an oblique incision in the loin, since the patient was also suffering from a movable kidney. The symptoms were greatly ameliorated by this procedure.

These contributions to the surgery of the stomach, showing as they do how large a percentage of the cases which are properly diagnosed and promptly submitted to surgical treatment recover, emphasize the importance of securing a surgeon's collaboration in many of the obscure stomachic affections, which, while resisting conservative forms of treatment, are progressively undermining the health and strength of the patient. An exploratory operation has become in modern times a safe procedure, and is one which is often postponed until it ceases to be useful, excepting as a means of satisfying curiosity.

THE TREATMENT OF COCCYGODYNIA BY MASSAGE.

The comparative frequency of harassing tenderness in and about the coccyx, often so pronounced as to interfere with the ordinary pursuits of life and seriously influence general health, and the refractory nature of the affection to methods other than excision of the coccyx, would naturally direct attention to any more conservative method of treatment. Hence Rose's communication to the effect that he has cured three obstinate cases of this affection by massage is of great practical importance. It is noteworthy that in all his cases neither the coccyx nor its articulation was sensitive to pressure, but higher up in the rectum there could be found a spot which was distinctly localized. The patients all suffered severe pain while sitting down. One was quite unable to assume this posture, and in all the suffering had lasted for several years. It was also noteworthy that the pains were at first periodical, but later became continuous, and that in all the cases the sensitive spot seemed to be swollen. The massage was at first given daily, and as improvement set in the interval was lengthened. The treatment was supplemented by irrigations and was continued for several months.

With increased skill in diagnosis and greater care in making examinations, a great number of affections formerly loosely classed as coccygodynia have been found to be due to lesions of neighboring parts, such for example as sacroiliac disease, hemorrhoids, rectal ulcers, anal fissures, uterine displacements, neuralgias, and muscular rheumatism. It follows that the operation of removing the coccyx, at one time popular and much practiced, is now comparatively rare. There remain, however, a certain number of rebellious cases in which constitutional treatment, counter-irritation, and the correction of pelvic displacement or inflammations are unavailing in relieving pain, and in which the seat of tenderness is either in the coccyx at its articulation or placed near it, as in Rose's cases. Under such circumstances Rose's procedure should at least be tried before a final resort to operation, which in the hysterical is not always successful.

Reports on Therapeutic Progress

THE TREATMENT OF POSTPARTUM HEMORRHAGE.

The *Boston Medical and Surgical Journal* of November 16, 1899, in an article by CURRIE, tells us that in cases of postpartum hemorrhage, as in all other similar instances, it is first of the greatest importance to determine, as accurately as possible, the source of the hemorrhage. In these cases there are three principal sources of the hemorrhage:

1. Injuries to the genital tract which occur during labor.

2. The sinuses in the lower uncontracted portion of the uterus, the fundus being firmly contracted.

3. The uncontracted uterus as a whole.

Injuries which occur during labor, and which are recognized only after completion of labor, vary in importance from a slight rent or tear to rupture of the vagina. The most probable site of a tear is in the cervix, although it may occur at any part of the introitus or within the vagina. The bleeding from the torn vessels may be sufficient to destroy life directly, or it may be only sufficient to prevent contraction, or the continuance of contraction, by diminishing the tone of the contractile tissue.

In every case of postpartum hemorrhage, whether apparently serious or otherwise, the condition of the uterus as to contraction should be ascertained at once. If the fundus of the uterus, as felt through the abdominal walls, is firmly contracted and the hemorrhage is profuse and persistent, it is safe to assume that the blood does not come from that portion of the uterus. It is, however,

presumptive evidence that a tear has occurred at some other portion of the genital tract, the only other probable source of the hemorrhage being the sinuses in the lower uncontracted portion of the uterus. The gravity of the injury can be quite accurately estimated by the amount of shock, which is at once apparent before a large amount of blood has been lost. If, under these circumstances, there is no great urgency, the patient should be placed in such a position as will enable the operator to see well and work readily. A hot-water douche should be used, and then with two fingers distending the vulva, its condition can be quickly ascertained. Tears within the vagina and in the cervix cannot always be recognized by touch, and it is better not to devote too much time to exploration in this way, unless the hemorrhage is not controlled by ordinary treatment.

As to treatment of these cases, it may be said, in general, that if the wound is readily recognized it is better to repair the injury at once, if possible. If the wound is deeply seated within the vaginal canal and the hemorrhage not excessive, ice or hot water may be used. Both of these agents are frequently very effectual, but in Currie's opinion the use of hot water is the most satisfactory. It should be used in large quantities, and even if it do no good otherwise, the parts will thus be thoroughly cleansed and prepared for further treatment. If the bleeding is not checked in this way the whole internal cavity should be firmly tamponed with antiseptic or sterile gauze in such a way as to exert firm pressure upon the bleeding points. If this is not successful the probability of a cervical rent is increased. If the tampon introduced as just described fails to control the hemorrhage, it should be removed at once and the bleeding points sought for. The uterus may be drawn down as near the vulva as possible and the bleeding vessels secured by ligatures, or by a ligature *en masse*. In cases of lacerated cervix it is not usually possible to properly repair the injury at this time, but if the character of the wound is such as to render it possible and the condition of the patient will permit, it should be done. However, the result in this respect is usually unsatisfactory, and the operation should be regarded as one for the purpose of securing the bleeding vessels. If the hemorrhage is excessive at the outset and from within the vaginal canal, with the fundus contracted, the whole cavity should be packed at once after using a hot-water douche.

The only remaining source of internal hemorrhage, under the conditions just described, is from the sinuses in the lower uncontracted portion of the uterus. This variety of hemorrhage may be profuse, but is much more frequently slight and constant. This condition is seen most frequently following cases of placenta previa. If the hemorrhage is profuse the indication is to tampon the whole internal cavity at once, after thorough irrigation with hot water; and in all cases when hemorrhage, whether profuse or otherwise, follows a case of placenta previa, the same course should be pursued. This variety of hemorrhage is almost certain to be constant, even if not profuse, and under the circumstances the loss of even a small amount of blood is important, so it is best to stop the flow as well as the probability of its recurrence at once.

A much more frequent variety of post-partum hemorrhage than that already referred to is that caused by failure of the uterus to contract after the completion of labor. This failure to contract is usually due to atony of the uterine muscles, and the object of treatment should be to overcome this condition and cause contraction. The treatment of these cases must, of necessity, vary with the gravity of the case. If the flow is not great, and danger to the patient not imminent, compression of the uterus through the abdominal walls will frequently cause it to contract and check the hemorrhage. The uterus should be grasped within the hand as soon as it can be distinguished, and squeezed tightly or kneaded.

Simple pressure upon the uterus is of no service in causing contraction. Bimanual compression is still more efficient, the mere introduction of the hand into the uterus sometimes acting as a stimulus to contraction. This proceeding, however, is still more effectual when, with one hand grasping the uterus through the abdominal walls and the other within the vagina, two fingers are placed behind the cervix in the posterior cul-de-sac and the cervix and body of the uterus bent sharply forward upon each other and pressed as tightly together as possible. If these means check the hemorrhage the compression should be continued until the uterus is felt to contract firmly and remain so. The pressure may then be gradually relaxed, noting the effect of doing so. If the hemorrhage is not checked the hand should be introduced into the uterus and should be withdrawn after ascertaining the

condition of the organ and removing all its contents. A large intra-uterine injection of hot water should then be used. The water should be as hot as can be borne, certainly not less than 105° F.; it should be used very freely, and if possible should be introduced by force of gravitation. However, any ordinary rubber syringe will answer the purpose and will produce no ill effect if properly used.

The use of hot water is grateful to the patient; it stimulates rather than depresses, and is effectual in almost all cases If, however, it fails to produce a good effect, common vinegar or acetic acid may be tried. Acetic acid may be added to hot water in the proportion of about one ounce to the quart and used in the same way as hot water. This remedy frequently causes immediate contraction of the uterus where other means have failed. Other remedies which are also useful when used in the same way are tincture of iodine, whiskey, etc. Any of these remedies may be employed as convenience and necessity may determine. Vinegar possesses the advantage of being readily obtained under almost all circumstances, and of being ready for immediate use; it is very effectual, and does not produce any ill after-effects. In order to use vinegar, saturate any clean material—sponge, a handkerchief, cotton, etc.—with it, enclose this within the hand, and carry the hand well up into the uterus. Then upon closing the hand the vinegar spreads over the sides of the uterus, and the effect is "frequently very prompt and satisfactory."

The introduction of pieces of ice into the uterus sometimes has an excellent effect. The objection to its use is that it is not comfortable, that contraction is not permanent unless its use is continued for some time, and that it tends to still further depress the patient.

Compression of the abdominal aorta may be tried also, but should not be wholly relied upon even for a short time. The objection to its use is that it is difficult to continue sufficiently long to be of much service without assistance, and that the uterine blood supply is not thus wholly cut off. It is, however, undoubtedly useful in preventing rapid exhaustion of the patient and anemia of the brain, and should be resorted to, if necessary, in connection with other treatment. In most instances compression of the aorta can be made most effectually through the abdominal walls, and in this way it need not interfere with other treatment. If the bleeding still continues, tampons should then be used.

If the hemorrhage is very profuse at the outset and danger to the patient is imminent, as is usually the case when atony of the uterus exists, the uterine and vaginal cavities should be firmly tamponed at once. Under these circumstances there is no time to make a very careful examination or to observe the effect of other remedies. Nothing but immediate mechanical arrest of the flow of blood can save the patient's life. The hand should be carried rapidly into the uterus to ascertain the existence of any morbid condition of that organ and to remove any pieces of placenta, clots, or débris that may be present. The cavity should then be cleansed with a hot-water douche, the parts exposed, and the cervix drawn well down to the vulva by means of a blunt vulsellum; then with one hand holding the fundus of the uterus, if it can be distinguished, the whole cavity should be securely packed, leaving the end or ends of the material used protruding to facilitate removal. The vagina should be packed in the same manner, keeping the material well up against the uterus. This adds very much to the security and efficacy of the uterine tampon.

The best material for packing the uterus is iodoform or other variety of antiseptic gauze. However, in case of an emergency, any clean material—handkerchiefs, strips of cotton, etc.—may be used. The tampon should be left in twenty-four hours if it checks the hemorrhage, or until it is expelled or uterine contraction is established for some time. After its removal the uterine cavity should be thoroughly washed out, especially if any material not known to be aseptic has been used. In the event of not having the necessary instruments or of not being able to use them from any cause, it is quite possible to tampon the uterus securely by making pressure upon the abdomen with one hand and using the other to carry the material up into the cavity; with the two hands thus in apposition the uterus can be completely filled and the tampon pressed against the bleeding surfaces.

If the bleeding continues, either the tampon is improperly placed or there exists some morbid condition of the uterus, "benign or malignant, which has been compressed during gestation and torn during labor." In the event of failure the possible existence of this condition should not be forgotten, but even so the tampon is still the

best method of treatment. In this event the first portion of the tampon introduced might be saturated with some form of styptic, such as iron solution or tincture iodine. Should the bleeding still continue, in all probability an atheromatous condition of the vessel exists. I have never seen a case of this kind, but the treatment recommended is to make firm pressure upon the fundus of the uterus and to so evert the organ in the vagina that the bleeding vessels may be caught and secured or a portion of the uterus bound by an india-rubber band, so as to cut off the circulation, as recommended by Kocks. The whole may then be fastened by a gauze bandage and retained for six hours. Undoubtedly ligature of the vessels is the most desirable, if possible.

A very important feature in the treatment of serious cases of postpartum hemorrhage is the general care of the patient. The indication is to prevent as well as overcome the effects of anemia of the brain and sudden exhaustion. The patient's head should be lowered and the foot of the bed raised. The limbs should be successively bandaged from the extremities upward, and the bandage allowed to remain in position, or a band placed about the limb before its removal. Compression of the abdominal aorta acts in the same way. If the condition of the patient is serious, alcoholic stimulants should be used freely, and strychnine in moderately large doses should be given. Both should be used subcutaneously.

The principal indication, however, is to fill the circulation and the heart with a large amount of saline solution at once. The best saline solution is common salt dissolved in hot water, in the proportion of one teaspoonful of salt to a quart of hot water. This should be used early, in large quantities—several quarts, if necessary—and should be introduced as far up into the bowel as possible. This in most cases acts very speedily and effectually. If, however, the effect is not satisfactory, the saline solution should be used hypodermically. For use in this manner the solution should be of the strength of 0.6 per cent. The best situation for using the liquid in this way is in the loose cellular tissue of the back or chest, and the best means of using it is by the force of gravitation. In this way as much as 500 or even 1000 grammes of liquid can be introduced into the circulation very quickly, without any local effect, and it relieves the anemia almost instantly. If the effect is not satisfactory, the liquid may be introduced directly into the venous circulation. This is a much more complicated and formidable proceeding, and is seldom if ever necessary, but if used there are a few particulars which should always be observed. The temperature of the solution should be at least 100° F. and of the same strength as in the preceding instance; it should be absolutely free from saline particles; it should be introduced in a slow, steady stream; the quantity of liquid should vary with the effect produced, and the needle should be introduced into the vein while the liquid is flowing.

Currie submits the following summary:

1. A knowledge of the source of the hemorrhage is necessary to insure intelligent action.

2. All rents when easy of access should be repaired at once.

3. If the body of the uterus is contracted and bleeding excessive, and in all cases of hemorrhage following placenta previa, the whole cavity should be tamponed at once.

4. If this is not successful, or if the hemorrhage is constant and not excessive, secure the bleeding vessels, and if possible repair the injury.

5. If atony exists and hemorrhage is not excessive, use external and bimanual compression of the uterus, followed, if necessary, by hot water, vinegar, or acetic acid.

6. If not successful, or if atony exists, with excessive hemorrhage from the outset, tampon at once after using hot water.

7. Give morphine hypodermically to check the hemorrhage, and stimulants, strychnine, and autoinfusion to overcome the effects of the hemorrhage.

8. To prevent anemia use saline solution, preferably per rectum or hypodermically. May use saline solution by infusion also, if necessary.

ERYSIPELAS AND ICHTHYOL.

The *Medical Press and Circular* of November 8, 1899, states that a medical *confrère* has recently published a series of 250 cases of erysipelas treated exclusively with ichthyol; the patients belonged to all grades of society, and their ages varied from six months to eighty-seven years. After having cleaned the surface with a plug of cotton-wool wet with alcohol, he applies with the fingers an ointment of vaselin and ichthyol (13 to 30 per cent). The treatment is renewed every four or six hours. Recovery was rapid in every case.

THE TREATMENT OF BURNS.

According to the *Journal de Médecine de Paris* of November 19, 1899, the following treatment may be instituted in cases of burns:

Compresses saturated with a solution of nitrate of potassium may be applied, the solution being of the strength of five per cent. This preparation relieves the pain, and prevents a rise of temperature. The patient may be placed in a warm bath containing this material. If the well known carron oil or linimentum calcis is employed, it is suggested that carbolic acid in the strength of one per cent should be added to it, or that thymol in the strength of five per cent should be applied; or vaselin containing ten per cent of boric acid may be used. The following formula is said to be employed by Reclus:

Vaselin, 2 ounces;
Boric acid, 1 drachm;
Antipyrin, 1 drachm;
Iodoform, 13 grains.

Another one is:

Vaselin, 3 ounces;
Essence of thyme,
Essence of geranium,
Essence of origanum, of each 4 grains;
Sodium naphtholate, 15 to 45 grains.

Other formulæ are as follows:

Menthol,
Iodoform, of each 15 grains;
Glycerin, 3 ounces.

Cocaine, 4 grains;
Salol, 1 drachm;
Vaselin, 1 ounce.

Europhen, 30 grains;
Lanolin,
Vaselin, of each 2 ounces.

Orthoform, 45 grains;
Vaselin, 1 ounce.

All these ointments are intended to prevent suppuration and to relieve pain and burning.

Another method of treatment is to apply subnitrate of bismuth and other drying materials in powdered form, particularly where the burn is wet and bleeding.

Still another application which is excellent where it is desired to favor cicatrization in burns which have existed for some little time is the following prescription:

Ichthyol, 15 to 30 grains;
Carbonate of magnesium, 3 ounces;
Oxide of zinc, 6 ounces;
Thiol,
Talc,
Subnitrate of bismuth, of each 1 ounce.

So far as general treatment is concerned, the patient should receive opium to relieve the pain, and if necessary subcutaneous injections of morphine in small doses, and during the period of suppuration, if it occurs, the system should be supported by means of tonics, such as quinine, kola, and iron.

THE TREATMENT OF DYSENTERY WITH PERMANGANATE OF POTASSIUM.

The *Journal de Médecine de Paris* of November 19, 1899, states that GASTINEL has obtained excellent results from the rectal injection of permanganate of potassium in dysentery. He employs the drug in the strength of eight grains to the quart. Half of this quantity is given at a dose, and is allowed to remain in the bowel from half a minute to two minutes. The water is either cold or warm, according to the needs of the case. For the removal of large quantities of mucus in the bowel he employs an injection of a pint of water in which is dissolved thirty grains of bicarbonate of sodium. This is followed by a permanganate injection, and after this has been given the patient is made to lie down and rest for at least an hour in order to secure immobilization of the intestine. It is claimed that by this treatment the pain and restlessness are diminished. In many cases it is only necessary to inject one or two ounces of fluid. Often it is wise to give a small dose of calomel for a time to increase the hepatic activity. When children receive this treatment, one or two grains of permanganate to the quart of water is sufficient.

THE VALUE OF UROTROPIN IN THE TREATMENT OF CERTAIN FORMS OF GENITO-URINARY DISEASE.

J. M. THOMPSON tells us in the *Boston Medical and Surgical Journal* of November 16, 1899, the results of his use of this agent. He believes that the essential points may be summarized in brief as follows:

1. It is a urinary sterilizer, antiseptic, and acidifier, prompt and reliable in action, moderate in dose, which, if adhered to, renders the drug non-toxic and non-irritating to all parts of the animal economy.

2. In virtue of its peculiar affinity for the urine, into which it passes unchanged, and where it parts with formaldehyde, it is apparent that its action in genito-urinary lesions is likely to be complete and certain.

3. Its decisive and lasting effect, and especially its comparative singleness of action —which last is a most desirable property— should give it a place in the list of medicinal specifics.

4. From the observations reported thus far, urotropin has appeared to be most frequently indicated in chronic disease, where it has produced exceptionally good results.

5. In the writer's personal experience the diuretic action of the drug was not marked enough to render it deserving of claim to such a virtue.

CONTRAINDICATIONS FOR THE USE OF CACODYLATE OF SODA.

The Paris correspondent of the *Medical Press and Circular* of November 8, 1899, reports that at the Academy of Medicine M. Gautier spoke on the preparations of cacodylate of soda, which when administered, he said, by the mouth or by the rectum produced frequently symptoms of intolerance; the patient complained of cramps in the stomach, and the breath presented a garlicky odor. These symptoms persisted several days after the suppression of the drug. He had also remarked that in individuals whose kidneys were perfectly sound, and, *a fortiori*, in those more or less impermeable, the prolonged injection of cacodylate of soda produced only temporarily albuminuria. On account of this inconvenience, due to an incomplete reduction of the agent in the intestine, M. Gautier opposed its employment by the mouth or the rectum in favor of hypodermic injections. Not only was the odor of garlic thus avoided, but also the other troubles. His formula was:

Cacodylate of soda, ʒ jss;
Phenicated alcohol, ♏ x;
Distilled water, ʒ iijss.

Each syringe represented one grain of cacodylic acid—that is, the average dose for an adult in the twenty-four hours—but this amount might be doubled without danger, provided that the treatment was suspended every eight or ten days.

BEER YEAST IN VAGINAL GONORRHEA.

The *Medical Press and Circular* of November 8, 1899, tells us that SIREDAY is in the habit of employing in his hospital service beer yeast in the treatment of blennorrhagia in women, according to the method of Dr. Landau, of Berlin, who employed it in leucorrhea. A plug of cotton steeped in a mixture of fresh brewery yeast and sweetened water is introduced into the vagina and renewed daily. The daily treatment brings about a rapid modification of the diseased state of the mucous membrane, and a notable decrease of the secretion, although it does not effect a complete cure.

THE TREATMENT OF PSORIASIS BY ALCOHOL.

A Russian physician by the name of LAU has called attention to the excellent results which he has obtained in the treatment of this affection by means of strong alcohol. He applies at night to the affected part cotton compresses wet with alcohol varying from seventy to ninety per cent, and containing two per cent of salicylic acid. These compresses are covered with rubber dam or other impervious material, and are not removed until the following morning, when the parts are washed with soap, and the loosened scales removed. After this is done the part is anointed with lanolin. He claims that he gets better results from this treatment of psoriasis than follows the use of tar, chrysarobin, or pyrogallol. Further than this, the method of treatment is a cleanly one, and does not give the patient any annoyance.—*Journal de Médecine de Paris*, Nov. 19, 1899.

TABES DORSALIS AND ITS TREATMENT.

The *Medical Record* of November 18, 1899, contains an article by DANA in which he first considers the pathology and diagnosis of this disease, and then discusses its treatment. He points out that what may be called the present canonical practice in the treatment of tabes is the following: The patient, if in the first or early second stage of the disease, is placed upon a rigorous and antisyphilitic treatment for six to eight weeks. This is followed by a tonic treatment and a course of thermal baths. The treatment is repeated in a year or less. In the intervals the patient is given small doses of iodide and mercury, and is in general treated medicinally as if he had some arterial sclerosis. He receives also courses of electricity, massage, exercises, cord-stretching, spinal counter-irritation, and various supplementary and symptomatic drugs, such as ergot, arsenic, aluminum chloride, iron, and the phosphates, in accordance with the choice or experience of the physician.

Can these measures be improved upon? The efficacy of antisyphilitic treatment is based not on assured personal experience, but on the general fact or alleged fact that tabes nowadays is less severe and that syphilis is the original cause of the disease. It is probable that this treatment does good in many cases, and rarely does harm. Dana does not know of any neurologist who is able to affirm that it has in his experience surely modified the course of the degenerative process, but many of us have seen it improve the incidental symptoms due to syphilitic exudation, and we have not had the courage often to refuse the treatment in the purely degenerative cases. But in Dana's opinion it is time to change the canonical practice somewhat, and he practices and advises the following:

In the first and secondary stages all cases with a distinct history of primary and secondary syphilis, either cutaneous or in the nerve centers, should receive rigorous courses of mercury and iodide. In many such patients the tabetic trouble comes on rather suddenly with rapid development of weakness in the legs, amounting perhaps to paraplegia, or with attacks of hemiplegia, or with severe headache, ocular or other cranial nerve palsies, and neuralgias; in other cases there is simply a good history of primary and secondary syphilis. Such patients are in the minority, but they are not rare, and they should receive the canonical therapeusis.

Mercury should be first given. For this purpose the patient should be kept at home if possible, and in bed. The best way to give the mercury is by hypodermic injections of corrosive sublimate in doses of $\frac{1}{10}$ grain once a day, or twice if the symptoms are urgent. The injections are rather painful and require care. The mercury is dissolved in 30 minims of water, to which $\frac{1}{10}$ grain of cocaine is added. They should be given for two to four weeks, according as constitutional symptoms appear. The patient takes about 30 grains of iodide of potassium daily during this time. After the mercurial course the iodide is rapidly followed, 300 grains a day being given if possible. No advantage is gained by larger doses. This medication is continued for about four weeks, so that the patient is under treatment for six to eight weeks. He should have, during all this time, a warm bath twice a week, and oftener if he desires it. If the hypodermics are not well borne the patient should receive inunctions of about one drachm of mercurial ointment for six successive days and a hot bath on the seventh, this being repeated for three or four weeks. Mouth washes should, of course, be used. After this course the patient receives the tonic treatment, and here the best medicinal measures are the tincture of iron and some preparation of phosphorus, preferably dilute phosphoric acid, 30 minims daily, or the glycerophosphate of lime or soda, 40 grains daily. Such measures must be kept up for two months. During this tonic treatment the patient should receive twenty-four lukewarm baths (one a day) at 94° to 96° F. for eight to ten minutes, followed sometimes by a cool affusion. Some additional comfort and perhaps benefit may come from adding salt, soda, carbonic acid, or pine-needle extract to the baths. Instead of the baths at home he may be sent to some thermal springs.

During this tonic period counter-irritation to the spine may be made by the cautery or small blisters, and the former should be applied twice a week if there is much pain.

Patients should be made to rest as much as possible during all this time, which altogether covers about three months; going to bed early, sleeping late, lying down in the middle of the day for an hour. Driving is a good exercise, walking a poor one, for them.

The diet should be moderate in quantity and simple in character, but nothing is gained by rigid meat diets or rigid vegetable diets. Fattening foods, malt, cream, and oil are to be recommended, however.

The patient has a hard enough time anyway, and it does no good to deprive him of his tobacco or a moderate amount of alcohol, unless there is some individual peculiarity requiring it. So far as possible the patient should be allowed to look after his business affairs, and to take his share in the enjoyments of life.

This antisyphilitic and bath treatment should be repeated at least once a year. In the interval the patient is given tonic medication and mechanical treatment of various kinds.

If the patient, as is so often the case, comes without any history of secondary or tertiary syphilis and without the slightest sign of nervous syphilis, it is utterly useless to put him through the mercury and iodide treatment. At the most we can say, perhaps it does no harm, though Dana is not so sure of that.

These purely degenerative cases must be treated at once as though they were getting

prematurely old, as in fact they are in the spinal sensory neuron. They must be put at once upon the two months' rest, tonic, and bath regimen just described. The question is whether we have any specific measures in addition by which the progressive decay can be more surely stopped or slowed up. Such specific is in a measure constituted by an absolutely regular, quiet, institutional life, such as is found in hospitals, and such as cannot always be easily imitated at home. For this reason the poor man who comes into a hospital is more surely helped than the rich man who has the luxuries and anxieties of a home and a family. Institutional life is approximately a specific, but this cannot often be given in early tabes, and often not at all. There is one method of treatment which is on the whole more successful than any other single one, and it may be looked upon also as measurably specific. It consists in putting the patient to bed and giving him large doses of strychnine and small doses of morphine by hypodermic injection. The doses should be at first very small, and should be very cautiously and slowly increased. For example, twice a day Dana gives at first $\frac{1}{60}$ grain of morphine. At the end of the week these doses are increased to $\frac{1}{30}$ grain; at the end of three weeks to $\frac{1}{15}$ grain; and at the end of five weeks to $\frac{1}{10}$ grain. This latter dose he sometimes increases to $\frac{1}{10}$ grain, but never more. These doses are then decreased gradually to $\frac{1}{30}$ grain at the end of the sixth week. Phosphates and iron may be given at the same time.

Strychnine is a useful drug in tabes, but also a dangerous one. Dana has seen it produce pains and even a kind of general collapse of the patient, as though the motor cells were exhausted. Guarded by rest and small amounts of morphine, however, he has never seen any harm and always much benefit. After a course of this kind the patient is placed on the two months' tonic treatment as above outlined, and given with it small doses of iodide of potassium—*i. e.*, 20 to 30 grains a day. This tonic rest treatment, if it proves satisfactory, must be repeated once or twice a year if possible, as is also the iodide treatment in cases in which this is indicated. Sometimes the two can be alternated. There should always be periods of rest when the patient takes nothing. This application of periodic rest and tonic treatment with intermission must, he insists, be persistently kept up. He does not know of any drugs that are of much benefit to the disease other than those already mentioned. He has seen no reason to believe that silver, arsenic, aluminum, ergot, barium, or gold are any good. Ergot is useful in vesical weakness, but not as a constitutional remedy. Hot baths are dangerous. The medicinal springs, such as those of Hot Springs of Virginia and Arkansas, and Lamalou and Nauheim, no doubt have some favorable influence, but the same, barring the psychical effects and the rest, can often be got at home. Some patients are distinctly improved by careful courses of electrical treatment, including galvanization of the spine and general faradization of the muscles. He does not expect so much from this as from the other measures, but the personal equation is a curious fact in therapeutics, and some persons enjoy and respond to electrical treatment while others are annoyed and irritated by it. The benefit must, of course, be partly psychical and partly due to effects on metabolism and cutaneous and muscular stimulation. Nerve and cord stretching sometimes helps vesical and sexual weakness and pains, and improves the gait. Nothing more than symptom improvement could be expected. With the special method of cord stretching devised by Tourette and Chipault, Dana has not had satisfactory experience.

The treatment of tabes by means of systematic exercise for training the limbs sometimes produces very satisfactory results. The method was elaborated by Dr. Fraenkel, though in its simpler forms it has been applied for many years. It consists in giving the patient a series of exercises arranged so as to train and reeducate the muscular sense. These exercises are to be taken two or even three or more times a day, and last from a few minutes to half an hour. The patient, for example, is made to rise from a chair slowly and carefully, and then sit down; this is done three times. He is made to walk a line on the floor; to step over obstacles; to place the feet on definite spots on the floor at regular and irregular distances. He is trained to overdo in a sense the cerebral and conscious part of ordinary automatic acts, until these acts become automatically easy.

A series of exercises is given in an article published by him in *The Post-Graduate* of June, 1896, and republished in the fourth edition of his Text-book of Nervous Diseases.

Fraenkel's method accomplishes more if it

is done at first under the direct observation of the physician or a trained masseur. It does not cure or change the course of the disease, and is adapted especially to those cases in the first or second stage which have ceased progressing and in which there is some muscular power. It sometimes causes pain, and should be carried out with great care.

For the patient who is in the third stage of tabes and lies bedridden, only symptomatic treatment is indicated. The pains and visceral troubles are to be controlled as much as possible. There are a few cases, however, in which the Fraenkel method of muscular training may be tried. These are patients with whom the disease is practically arrested, who are intelligent and still willing to do something, and who have a fair degree of muscular strength.

In conclusion Dana says a word about the general subject of the therapeusis of tabes. We see every now and then cases which force us to think that this disease begins, runs its course, and ends as though driven on by an inexorable fate. It comes despite all precautions, and progresses, remits, and relapses despite all our therapeutics; we stand helplessly by watching this phenomenon of the rule of absolute law. There are some such cases; they belong to patients with particularly unstable neurons or infected with a particularly malignant virus.

There are other cases in which, the patients' vitality being great and the infection mild, the disease stops of its own accord for many years. They do not need treatment. But in the majority of cases the balance between health and disease, between the neuron and the poison, is more delicately adjusted, and it swings up and down according as the patient is skilfully managed or not. Hence there is a field for wise and cautious therapeutic endeavor. We cannot do marvels; the disease in most cases steadily though perhaps almost imperceptibly progresses, but we can see it arrested sometimes and relieved often, so that the patient leads a long, useful, and comparatively comfortable life.

THE TREATMENT AND FEEDING OF TYPHOID FEVER.

The *Columbus Medical Journal* of October 20, 1899, contains an article by E. H. WILSON upon this subject. In it he tells us that in regard to the feeding of typhoid fever patients he is at variance with the majority of the profession. For many years milk has been used almost exclusively for the feeding of typhoid. We have all been told about its being the ideal liquid food, and Prof. H. C. Wood says, in the last edition of his Materia Medica and Therapeutics, that it is all digested and absorbed and leaves almost no fecal residue in the bowels. This may be true in a healthy stomach, but Wilson doubts it even then. In typhoid fever all admit that the digestive function is very much below par. This being true he is forced to the conclusion that to put from four to six ounces of milk that forms a hard curd into the stomach every three hours as he was taught, and as he is sorry to say he did for the first few years of his practice, is bad both in practice and theory. In a number of post-mortems on typhoid cases he has always found curds of undigested milk in the stomach, and portions of these curds in the small bowel, where they were forming ideal foci for fermentation and breeding grounds for various microbes. He has seen, time and again in consultation, patients with typhoid who are not doing well, where the physicians in charge could not account for the patient's condition, and he has seen the same patients improve wonderfully by changing the feeding and by stopping the milk which the stomach was not able to take care of, or modifying it in some way. He believes that whenever the physician is having trouble with the bowels, and when there is any tendency to excessive tympanites, milk should be the bulk of the food, but it should be given carefully and generally predigested, or so modified that it will not form a firm, hard curd. In the uncomplicated cases, however, and in the cases that have been controlled by proper care from the start, his bill of fare is much more generous and consists of some combination of the following: Soft-boiled egg, milk toast, custard, corn-starch, arrow-root, wine jelly, baked apples with cream and sugar, fruit juices, such as juices from stewed dried peaches, stewed blackberries, etc., tea and crackers, soups, beef juice, and when convalescence sets in very finely chopped tenderloin of beef or well broiled mutton chop chewed and the juice extracted, the fibrous part being rejected.

This bill of fare may seem free, but Wilson assures us that it is a perfectly safe one, and that after it has been tried the physician will find how much stronger and better his patient will become through the attack of fever. Once having seen the good effects of this

diet he is sure one will never confine a patient to a strict milk diet again.

The medicinal treatment of typhoid is most important. It is important in two directions. One is to know what to give; the other what not to give. If our patient has to die, at least let him die unaided by pernicious and senseless medication. As said above, we cannot abort or cut short this disease. We can therefore only watch for symptoms and treat them as they arise. Wilson does not believe in any routine treatment. Each case is to be treated by itself and the treatment modified to suit each patient. The only medicines that he gives in anything like a routine measure are the antiseptics. Any one of several may be used, and sometimes we will have to change from one to the other to get the best results. The remedies from which he selects one are sulphocarbolates of zinc and sodium, salol, arsenite of copper, and salicylate of strontium. After the bowels are cleansed with a dose of salts, castor oil, or in some cases small and frequently repeated doses of calomel, he directs that some one of this list of antiseptics be given every three hours, until the stools become odorless, and if there is any tympanites, until that has subsided; then the time is lengthened, and just enough of the remedy given to keep the bowels in good condition. If there is constipation, as happens now in so many cases, he flushes out the bowel with an enema every day, and every other day gives castor oil, or if that is not well borne by the patient, some other mild purgative. Unless the fever gets above 102.5° he does not bother about it. When it goes above that point, he has an enema of one quart of ice water given, and if necessary retained by the nurse holding a towel to the anus. As a general thing the bowel will retain this without any trouble. In addition to this the patient is sponged until the temperature has dropped to 101°. This use of the ice water enema and sponge bath does more than reduce the temperature; it arouses the energies of the patient, helps throw off the poisons of the disease, and increases leucocytosis, and is therefore one of the most powerful remedies. In sponging the patient be sure that it is done in the proper way. It takes two to give the sponge bath properly; one should handle the sponge, the other should follow and rub the patient until the skin is red and reaction well established.

In regard to whiskey and other stimulants, Wilson uses them when indicated. He has treated many cases of typhoid without a drop of alcohol. With the proper use of antiseptics there will be little cause to use any remedy to control the diarrhea. If, however, the physician needs anything of this kind, bismuth subnitrate has always served Wilson well. If either perforation or hemorrhage come on morphine is the only remedy that has been of advantage in the author's hands. He believes we should give it and keep on giving it until we get the results. A half-grain may give the result, or it may take five or ten grains in the twenty-four hours, but we should keep giving it until the result is attained. In hemorrhage one may apply an ice-bag to the belly; it will at least do no harm, and may do good. At any rate it will please the friends of the patient and we will get the credit of using it. The astringents are entirely useless, and the patient will be better off without them. If perforation occurs, it is considered now the proper thing to operate.

In the third week of the fever, when sometimes the tongue becomes dry, two drops of Fowler's solution every three hours will act like magic in relieving this distressing symptom.

There are a few "don'ts" that Wilson wants to impress on us: Don't use some nauseating fever mixture. Don't use the coal-tar derivatives nor any of the myriads of antipyretics. Don't treat a retention of urine as a suppression and give a lot of diuretics; use the catheter, it is easier and more certain in its results. Don't give large doses of quinine; it can do no good, and may do harm.

By carefully carrying out the treatment he has outlined and remembering the "don'ts," Wilson believes we will carry the most of our cases through successfully.

In talking about statistics, and we have statistics of the various treatments of typhoid thrust at us from all directions, we must remember one thing. The character of this disease has changed so much in the past twenty years that there can be no comparison between then and now. Professor Hare has estimated that the death-rate of typhoid fever for the whole civilized world has been reduced to fifteen per cent, and possibly even lower. This shows a great decrease from forty or fifty years ago, when it was as high as forty per cent. This must be taken into account when considering any plan of treatment, and the fifteen per cent may be taken as the normal death-rate.

Wilson has nothing to claim in the way of original treatment and feeding. He has given the treatment and feeding that he uses in his work, and the only claim he makes is that both are rational.

As to results, he can report one series of ninety-six cases, with two deaths, one from hemorrhage of the bowel; his second series under the same treatment is one of forty-five cases with no deaths. This comprises the cases treated during the past eight years, and includes all his private and hospital patients.

THE INFLUENCE OF ANESTHETICS ON RENAL PERMEABILITY.

GALEAZZI and GRILLO (*Il Policlinico*, Sept. 15, 1899) have made experiments on this question by trying the method of Achard and Castaigne, which consists in the administration of methylene blue and its subsequent detection in the urine. The authors first tested the value of the method in healthy subjects. They found that the color began to appear after thirty to forty minutes, and reached its maximum in three or four hours, finally disappearing in fifty to sixty hours. The urine was collected by catheter. It was found that general anesthetics — ether and chloroform — diminished the permeability of the kidney as shown by a retardation in the elimination of the methylene blue. Chloroform has a more marked effect in this respect than ether. Probably this retarded elimination of methylene blue is indicative of an associated imperfect elimination of toxic substances.—*British Medical Journal*, Nov. 11, 1899.

BORIC ACID AND FORMALIN AS MILK PRESERVATIVES.

H. E. ANNETT concludes an article in *The Lancet* of November 11, 1899, covering an investigation made by him in the following words: "From a consideration of the results of the above tests—chemically of the effect of boric acid and formalin in the different digestive ferments, and physiologically of the effect of these reagents on the nutrition of young kittens—one is forced to conclude that these chemicals when used as preservatives of milk (and probably of other foods) are very injurious to the health of the consumer and particularly so to the health of young infants. Further, it is easy to conceive that the great infant mortality-rate from diarrhea of many of our large towns may be closely connected with the practice, especially during the summer months, of systematically 'doctoring' milk by means of the preservatives used by milk purveyors, dairymen, and milkmen. These experiments on young animals will constitute the first of a large series by which 'that sufficient information' as to the injurious effects of the use of preservatives in milk will be provided in order to make an action under the Sale of Foods and Drugs Act possible."

THE PHARMACOLOGY OF CANNABIS INDICA.

After describing certain experiments made by him DIXON reports to the *British Medical Journal* of November 11, 1899, the following conclusions:

Hemp exerts its effects differently according to the preparation used, fresh hemp, for example, being diuretic, whilst the dried possesses little such action. Its effects vary according to the manner in which it is taken into the system; when smoked exhilaration is most manifest, whilst when taken by the mouth in small quantities exhilaration is generally not observed.

In cases where an immediate effect is desired the drug should be smoked, the fumes being drawn through water. In fits of depression, mental fatigue, nervous headache, and exhaustion, a few inhalations produce an almost immediate effect, the sense of depression, headache, and feeling of fatigue disappear, and the subject is enabled to continue his work, feeling refreshed and soothed. Dixon is further convinced that its results are marvelous in giving staying power and altering the feelings of muscular fatigue which follow hard physical labor.

When given by the mouth one or two hours is necessary before absorption occurs, the effects produced being more lasting than when it is inhaled. Hemp taken as an inhalation may be placed in the same category as coffee, tea, and kola. It is not dangerous and its effects are never alarming, and Dixon has come to regard it in this form as a useful and refreshing stimulant and food accessory, and one whose use does not lead to a habit which grows upon its votary.

By the mouth, on the contrary, hemp should rather be classified with the narcotics, and when given in this way the nervous effects produced may be such as to cause serious alarm, yet no danger is to be apprehended whilst the heart remains regular and strong. It is to be feared, however, that cannabis in-

dica can never become popular until its active principle has been isolated—that is, the isolation of a compound of fixed strength. Like any other stimulant or sedative narcotic, hemp may be abused, as when taken to produce an intoxicant or deliriant effect, but this abuse is rare and there is reason to believe has been grossly exaggerated.

Finally, from a frequent observation of hemp, both subjective and objective, Dixon can affirm that it is soothing and stimulating, being when inhaled a specially valuable cerebral stimulant. He believes it to be an exceedingly useful therapeutic agent, one not likely to lead to abuse, and producing in proper dosage no untoward after-effects.

IODIDE OF POTASSIUM IN THE TREATMENT OF ACNE.

The *Medical Record* of November 11, 1899, has in it an article by LEVISEUR upon this topic. He admits that it seems to be paradoxical to claim that iodide of potassium administered internally is useful in the treatment of acne vulgaris. The well known fact that this drug is liable to produce papulopustular cutaneous manifestations closely resembling the lesions of acne apparently favors its avoidance rather than its use. Practical experience while treating a number of acne patients with iodide of potassium has convinced him that the action of the drug is in many regards quite different from what one is led to expect, and that it can be utilized very well in the treatment of this stubborn disease.

As is well known, the escape of free iodine through the skin has been observed by R. W. Taylor. It has been found in the blood, in pus, in pleuritic exudations, in the mucus of the bronchi, in the fluid of hydrocele and synovia, in the milk, the nasal mucus, in the tears, the sweat, the crystalline lens, and vitreous humors, and, according to Howald, in the hair. In the pus of acne pustules or tumors of iodic origin it was found by Guttman and Adamkiewicz, while Ducrey's, Pellizary's, and Hyde's identical experiments were followed by negative results.

Spenzer, of Cleveland, advanced the theory that hydriodic acid is formed primarily, and other writers state that more complicated chemical combinations occur in the sebaceous follicles on account of the presence of fatty acids. One author is, he thinks, carried away by his imagination when he says that these chemical reactions are sometimes so intense as to produce nascent oxygen (ozone), which, when set free, acts as a strong irritant. Even if the presence of iodine in some of the normal secretions and in the pus has been demonstrated, there is no foundation for the belief that the lesions of iodic acne are produced as if the iodine was injected into the follicle from the outside. Modern investigators, like Thin, Colcott Fox, Gibbes, and Unna, have shown that a primary inflammation of the sebaceous glands does not exist, but that the papules and pustules must be considered as a superficial dermatitis together with the formation of minute abscesses in the cutis, all this being the result of the disorganization of small blood-vessels at special points through the iodine circulating in the blood. Of interest in this connection is the well known inflammatory reaction produced by dusting calomel into the eye of a patient who is taking some iodide preparation internally. Fricke was the first to call attention to this phenomenon, which occurred in the cases of two patients who had been taking hydriodic potash, one for twenty-eight and the other for thirty-six days. He then made experiments on healthy persons, producing the same results. He was unable to prove the presence of iodine in the lacrimal secretions.

Thirty years later Edmund Rose, Hennequin, and Lagarde took up the same subject. Hennequin's patient was given iodide of potassium in daily doses of about nine grains for ten days; then calomel was insufflated into the eye, producing an effect as if some caustic chemical had been applied to the conjunctiva. Bellini, who was the first to make experiments with animals, found that if about nine grains of iodide of potassium was administered twice daily, the excretion of the iodine as shown by urinary analysis was constant. He also drew attention to the fact that calomel is ten times more soluble in a three- to four-per-cent solution of salt than in ordinary water. He believes in the formation of a chemical combination of iodine and mercury.

Glancing through a number of standard works on the eye, selecting the chapter on phlyctenular ophthalmia, we find that some writers do not use mercurials in the eyes, and hence have no occasion to mention the phenomenon; others speak of calomel and Pagenstecher's ointment as useful, but give no caution as regards iodide of potassium. Some warn against calomel, but in the same paragraph recommend other mercu-

rials, while others prescribe all mercurials. Many writers mention only iodide of potassium, while others include iodide of iron, and in fact all iodine salts. Fuchs quotes Schlaefke as authority that the compound formed is mercuric iodide, while Mittendorf says that the irritating substance formed by the iodide is an oxide and not an iodide of mercury. It is quite important to note that many writers agree on two points, viz., that small doses of iodide of potassium may produce the phenomenon, and that it may occur comparatively soon after the beginning of the medication. Acute iodism also may appear soon after the administration of one or two small doses.

Leviseur does not refer to the iodism occurring in patients with nephritis or heart lesions, for according to O. Reichel and J. Neumann resorptive activity and consequently the vitality of the skin and mucous membranes are materially interfered with in these patients. Kessler tells of a case caused by an iodide of potassium and glycerin vaginal tampon. A few moments after the introduction there were burning sensations with lancinating pains in the abdomen, iodine taste, and pains in the lateral aspect of the face and neck. He also quotes Fournier as having seen three cases of œdema glottidis after small medicinal doses. Hewkley reports a case of acute iodism in which iodide of iron had been given in moderate doses, the characteristic symptoms soon following the exhibition of the drug. Similar cases are also mentioned by Briquet, Russell, and Finger.

Leviseur has observed that if patients with normal renal functions, having acne vulgaris, take five grains of iodide of potassium three times a day in a glass of milk, symptoms of what might be called acute iodism appear as early as after two or three doses, and not later than on the third day. The symptoms consist in the appearance of a metallic taste, running from the nose, and a feeling of pressure in the frontal region. Aside from the subjective symptoms, which being slight are noticed only by intelligent patients, nodules appear in the apparently healthy skin of the face, of the size of a pea. They are deeply embedded in the skin, somewhat but very slightly redder than the surrounding parts, and moderately painful on pressure. They resemble urticaria wheals, or better yet, a diminutive form of a lesion of erythema nodosum. At the same time acne lesions are present, especially the old indurated ones; they show a sudden increased inflammatory reaction, resembling very much the reaction occurring in and around lupus nodules after the injection of tuberculin. He does not try to explain the appearance of this peculiar early iodism after small doses, but points out that according to Cyon the iodide salts circulating in the blood, after being transformed rapidly into an organic combination, are changed into iodothyrin by the action of the thyroid gland. This gland may, therefore, play an important part in this connection. If larger or very large doses (one to two ounces) for psoriasis (Haslund) are given, it is quite possible that through the action of the drug on the kidneys the iodine is eliminated more as an alkaline iodide, and not so much in organic combination.

In all the cases, numbering about fifty, treated by Leviseur with iodide of potassium, this drug was administered in milk. The therapeutic action of the iodide is in no way interfered with by giving it in this vehicle, but it is rendered more acceptable to the stomach; a considerable quantity of the iodine (0.17 to 100) becoming neutralized by the alkali and albuminates contained in the milk. The average dose of iodide of potassium was five grains three times a day. In almost all cases the urine was tested for the presence of iodine. This test he has found quite simple. Some urine poured into a test-tube is mixed with one-third of its volume of ordinary corn-starch. Then a drop of commercial nitric acid is allowed to run down inside the tube. The latter should not be held in the hand, but should be put into a glass standing on the table, so as to keep the tube perfectly quiet. If iodide is present in the urine the drop of acid running down into the mixture will form a streak bordered by a blue or violet color, which gradually disappears. The presence of one part of iodide of potassium in six thousand can easily be demonstrated. As a rule the iodide appeared in the urine after two or three doses on the second day, and had entirely disappeared about forty-eight hours after the medication had been discontinued.

THE TREATMENT OF NEPHROLITHIASIS WITH GLYCERIN.

The *Medical Chronicle* for January, 1900, contains an article by HERMANN, of Carlsbad, upon this subject. Starting from the fact that glycerin taken by the mouth passes in a great part into the urine, and that, on

the other hand, it is a solvent for uric acid, he employed glycerin seven years ago in cases of nephrolithiasis, hoping that the concretions of uric acid might become dissolved thereby. Although these theoretical reflections proved to be incorrect, yet the results of his treatment of nephrolithiasis with glycerin have been favorable. Altogether he has given glycerin in 115 cases of nephrolithiasis, and has obtained by this treatment the following results:

In fifteen cases concretions were passed and improvement was noticed in the patients' complaints; in twenty-nine cases concretions passed without bringing about any such improvement; in twenty-five cases there was improvement only of the patients' condition without any concretions being passed; in forty-six cases glycerin had no effect whatever. Thus glycerin proved to be efficacious in sixty per cent of the cases so treated, either by removing concretions or else by removing the pains which accompany this disease.

In a quarter of those cases in which concretions were observed to pass after the use of glycerin, their size varied from a lentil to a pea; in the rest gravel or sand alone was passed.

In two cases the concretions which passed consisted of oxalate of lime; all others were uric acid. The stone-expelling effect of glycerin has been also confirmed by Ortner, and by Kugler, who observed the passing of a uric acid calculus the size of a pea. The stone-expelling effect of glycerin in nephrolithiasis was shown in various ways. As a rule the dull boring pain in the back, which so frequently accompanies this disease, would stop, or the painful sensations along the ureters would disappear, or else movements of the trunk, which were at first painful, and therefore had been avoided by the patient, could afterwards be made without pain.

The anodyne action of glycerin in nephrolithiasis has been confirmed by all authors, and even uncommonly praised. So says Casper; and Rosenfield speaks of the relief of the pain after the use of glycerin as simply astounding.

After taking glycerin the patients showed the following symptoms: Several hours after the remedy had been taken pain occurred in the kidney region, and in the case where only one kidney was diseased this would happen only on the affected side. These pains, which would often assume the character of a kidney colic, were never very violent, as is shown by the fact that in no case was Hermann obliged to use narcotics. The pains passed along the ureters toward the bladder, and would then, in most cases, cease suddenly. Such pains have been noticed also in cases where there was no evidence of the passing of a calculus. On the other hand, the concretion may pass with the urine within twenty-four hours.

The urine voided after the use of glycerin proved to be free from albumin, sugar, and blood; but it contained very much mucus and pus, especially when there was a complication with pyelitis. The urine always contained considerable quantities of glycerin; thus, to quote just one figure, Hermann mentions that five hours after taking 120 grammes of glycerin an analysis of the urine showed the presence of nine per cent of glycerin.

In order to explain the favorable action of glycerin in nephrolithiasis we must consider first that the glycerin-urine is, physically speaking, very essentially different from the ordinary urine. The finger dipped into it has not the feeling as if touching a watery liquid, but rather an oily substance; and Hermann fully believes that the passing of concretions is made easier by the lubrification of the urinary passages. He has not been able to convince himself that glycerin has a solvent, chemical action. The crystalline conglomerations obtained after the administration of glycerin, when examined with the finger or under the microscope, had just as sharp edges and were just as pointed as those which had been passed spontaneously.

Rosenfield also believes in a physical action of glycerin in these cases. According to him the urine, having the presence of a higher specific gravity owing to the glycerin, and being of a more viscous nature, is liable to cause a change of position among the concretions in the pelvis of the kidney. This hypothesis would seem to make more fully intelligible the pain-alleviating action in particular. To explain the voiding of mucus and pus brought about by glycerin (and this must, of course, be considered where it acts as an anodyne) the dehydrating property of glycerin may be pointed out. Morphological elements which happen to be in the pelvis of the kidney will shrink, and thus be easily eliminated.

The dose of glycerin Hermann used in his cases was chosen in accordance with the weight and age of the patient. He kept within the limits of from one to four ounces

(by weight). The prescribed remedy was dissolved in an equal amount of water, and always taken at one dose between two meals, and repeated two or three times in an interval of several days. He does not think it rational to give smaller doses several times a day, as this way of administering the remedy would not bring about the desired effect, considering the way the remedy is expected to act, as explained above. If taken in the doses mentioned (one to four ounces), he has never seen any disagreeable symptoms. In some rare cases where the greater doses were given, nervous individuals complained of headache; or diarrhea might occur in people whose digestive organs were not quite normal. The first symptom he saw in twelve cases, the other in three; but these complaints would stop spontaneously after a few hours. In private practice it would be wise, in order to avoid such disagreeable after-effects, to begin with a smaller dose, and if the remedy agrees, to use it in the larger doses, for these are far more effective. To those who have spoken a word of warning against the internal administration of glycerin in larger doses, with regard to a possible toxic effect, Hermann says that Rosenfield has given even greater doses in kidney trouble —*i.e.*, one gramme for each pound of body weight. Moreover, he points out that he has not yet seen the slightest disturbance due to glycerin, though he used it frequently. Thirty years ago in England, as well as in Germany, glycerin was prescribed for diabetics, frequently, in even larger doses, yet authors do not report any noxious after-effects.

Hermann wishes to lay stress on the fact that even the complication of albuminuria is not unfavorably influenced by glycerin, for there is no increase of albumin on the day the remedy is taken, and he knows of one case where after three doses of glycerin, followed by a passage of gravel, the previous albuminuria disappeared completely. One more objection must be mentioned. Senator has observed the passage of gravel, accompanied by hematuria, after the use of glycerin, and he advises, on account of this incident, prudence in the use of the remedy. Hermann has seen hematuria altogether in six cases; however, the rarity of this occurrence, among at least 350 cases, proves that hematuria cannot be a consequence of glycerin, but rather a casual complication due to the concretion changing its position, either spontaneously or owing to glycerin.

Hermann believes that he has proved the harmlessness as well as the great value of the glycerin treatment in many cases of nephrolithiasis. He thinks that perhaps these lines may contribute to make his mode of treatment also acceptable to English physicians.

THE TREATMENT OF HEMORRHOIDS.

In *La Presse Médicale* of December 2, 1899, the following prescriptions are given:

Chrysarobin, 1 grain;
Iodoform, ½ grain;
Extract of belladonna, ½ grain;
Cacao butter, 30 grains.

Make into one suppository.

Two or three of these suppositories are to be inserted into the bowel each day, or, instead of these suppositories, the following ointment may be used:

Chrysarobin, 12 grains;
Iodoform, 5 grains;
Extract of belladonna, 10 grains;
Vaselin, ½ ounce.

Apply locally several times a day.

If small indurated projections of skin and mucous membrane are present, with a good deal of induration around the part, the following may be employed:

Iodide of potassium, 15 grains;
Iodine, 2 grains;
Glycerin, 1 ounce.

This is to act as a local alterative. Later, if irritation is absent, a stronger solution may be employed, composed of:

Iodide of potassium, 75 grains;
Iodine, 15 grains;
Glycerin, 1½ ounces.

Small doses of distilled extract of hamamelis may also be given internally with each, and continued for several months.

ACCIDENTS DURING ANESTHESIA.

The *Medical Record* of December 30, 1899, has in it an article by GALLANT, in the course of which he tells us that for the prevention of accidents we should thoroughly empty the bowels of feces, and so minimize fermentation and abdominal distention, and avoid distressing pressure on the heart and lungs. The ingestion daily of from two to three quarts of water (a glassful every two hours) will have an excellent effect on the kidneys and intestinal tract, and also tend to raise the blood-pressure.

From our ante-anesthesia observations of

the pulse — radial and temporal — and the color of the skin, we are able to note any change in the action of the heart. By pinching the lobe of either ear the refilling of the capillaries and return to normal redness affords reliable means of determining the condition and activity of the circulation.

A small dose of morphine ($\frac{1}{12}$ to $\frac{1}{8}$ grain) hypodermically, fifteen to twenty minutes immediately preceding etherization, will have a quieting effect on respiration, stimulate the heart's action, and unlike larger doses ($\frac{1}{8}$ to $\frac{1}{4}$ grain) will lessen postoperative nausea and vomiting and diminish the quantity of ether necessary to maintain anesthesia. Heart weakness may be met by the hypodermic use of strychnine ($\frac{1}{30}$ grain), tincture digitalis (10 to 20 minims), or brandy. Loss of blood or shock from prolonged operation must be overcome through enemata of hot (120° to 130° F.) saline solution (one drachm of salt to one pint of water), to which may be added two to four ounces of brandy. The effect of such an injection will be almost marvelous. Saline infusion during an operation, or at its close, before consciousness has been restored, has done excellent service under similar circumstances.

The most troublesome and annoying feature during anesthesia is the action of respiration. When the cone is gradually brought near the face by the patient himself little difficulty is experienced, but as soon as the mask is fitted over the nose and chin, and the air fully charged with ether, a choking sensation occurs, and the patient will struggle violently to remove the cone. At no time is better judgment needed than at this stage. Raise the cone, allow the patient to take a full inspiration, and then quietly replace it, with the injunction to "blow it away." From this time on the cone should not be removed from the face until the surgical degree of anesthesia has been reached.

In order to prevent "pharyngeal stertor" the head must lie in such a position as will not bend the neck too far back or approximate the jaw too near to the sternum. Knowing that pharyngeal stertor is due to the too close approximation of the paralyzed tongue upon the posterior pharyngeal wall — really against the cervical vertebræ — by adjusting the head a little higher or a little lower we can afford relief. Turning the head to one side will in some instances give relief. In others it is necessary to lift the jaw well up, not in the usual barbarous fashion, but by embracing the chin in the hollow of the hand, being careful not to bend the head backward and so arch the cervical vertebræ forward, for by so doing we increase rather than relieve the difficulty. When, during the administration of an anesthetic, especially chloroform, the patient suddenly ceases breathing and becomes deadly pale, the jaw drops and the tongue touches the teeth, we may be sure the tongue is at fault. To Martin and H. A. Hare of Philadelphia we owe the proof by demonstration that in order to open the larynx and give free entrance to air the tongue must be pulled upward toward the nose. This can be accomplished by the use of forceps, a hook tenaculum, or better still, by running the finger well down the dorsum of the tongue and pressing it forward toward the teeth, when a deep inspiration will result, and the patient will breathe naturally.

A deep purplish darkening of the face, and the escape of dark blood from the field of operation, indicate that the patient is not inhaling enough oxygen; really a condition of temporary asphyxia from accumulated mucus, foreign body in the trachea, or obstruction by the tongue, and which can be readily relieved by removing the cause. Cyanosis is most often met with in stout, short, thick-necked people, and necessitates a more careful adjustment of the head, and close attention to the general condition.

The precautions given as to food and diet must be observed, and anesthesia maintained at the surgical degree to prevent vomiting. If efforts at vomiting do occur during etherization, turn the head to one side, wipe out the mouth, and during the interim crowd the ether so as to dull the vomiting center and prevent its recurrence.

Failure of respiration demands the application of artificial respiration. While Sylvester's method is the most popular, unless the tongue is held "well forward toward the nose" no air can enter the lungs. Marshall Hall's method affords the most natural means, as in the side position the tongue falls forward, mucus runs out of the side of the mouth, and respiration is unimpeded. Oxygen by inhalation, as a stimulant to the heart and respiration, is of great benefit in plethoric, short-necked people, who seldom breathe well during anesthesia. Oxygen may be applied directly to the mouth, to the nose, or introduced beneath the cone.

Without enumerating the ordinary measures, there are four points wherein the writer differs from the usual procedure in the care of patients recovering from anesthesia, viz.:

1. Ever since a celiotomy patient, under his care, sat up in bed two hours after operation, emptied the contents of a hot-water bag into her stomach, and recovered, it has been Gallant's practice to give hot water *ad libitum* as soon as the patient is conscious enough to ask for a drink. It allays gastric irritability, quenches thirst, and if vomited really washes out the stomach. Its early use also has a good effect on the kidneys and intestines.

2. Milk, with or without lime-water, is given as soon as the stomach is quiescent. Starvation does not strengthen a weak heart, nor aid recovery from loss of blood or shock.

3. As soon as the dorsal decubitus becomes at all irksome, turn the patient on the side, and a restful sleep will follow.

4. Intestinal distention or paresis usually begins during the latter part of the first day, and soon becomes a source of great discomfort. If not relieved by high enemata, at once resort to friction along the colon; beginning at the right iliac fossa, pass the hand up the ascending, across the transverse, and down the descending colon, slowly repeating this maneuver for fifteen or twenty minutes. This will result in free discharge of gas from the rectum, give immediate relief, assure us that there are no intestinal kinks, and that the bowels will move whenever it is deemed desirable.

GENERAL PERITONITIS AND ITS TREATMENT.

The *Medical Record* of December 23, 1899, editorially tells us that the subject of the treatment of general septic peritonitis is always one of interest, although we know that we are almost invariably fighting a losing battle. One of the commonest causes of this as well as other forms of peritonitis is disease of the vermiform appendix, so that we are thus able to speak properly of a form of appendicular inflammation with general peritonitis, characterized by a set of symptoms whose presence almost at once destroys hope in the mind of the surgeon. Cases are reported from time to time of recoveries from this condition after operation with extensive peritoneal irrigation, usually with surgical salt solution and subsequent free drainage. The method is not entirely satisfactory even when successful, and the results are not always to be accepted without reserve as cured cases of general septic peritonitis, because it is often the case that a very considerable portion of the peritoneum is not involved at all in the disease, in spite of clinical appearances, and may even have escaped contact with the irrigating fluid used at the operation.

One of the most unsatisfactory parts of the question is that concerning safe and efficacious drainage. The rapidity with which peritoneal adhesions form around such a focus of irritation as that caused by a strand of gauze packing is well known, but the effect of this process upon the perviousness of the drain has perhaps not received the attention it deserves. The aim of the operator has always been to remove as much as possible of the inflammatory products by irrigation, and to provide then efficient drainage for a period of at least forty-eight hours. It has been recognized that it is not possible to disinfect the peritoneal cavity, but there has always been hope that the peritoneum would be left in a condition to cope with the remaining infectious matter, and would take care of any new septic products which might be formed. The peritoneum has been trusted to great lengths in this regard by some operators, and in some cases after free irrigation with salt solution and local cleansing of the site of the infection, the abdomen filled with hot salt solution has been entirely closed.

Successes have been reported after this method, though we hesitate to say in consequence of it, for the question of the actual extent of peritoneum involved is not always easy to settle, though this has an important bearing on the future of the case. If the peritonitis is actually general, the alexic function of the whole peritoneum is practically lost, and we should be justified in thinking that mere dilution of the poison would not prevent its entrance into the circulation. Furthermore, we must remember that by the time a true general peritonitis has developed the human organism must already have absorbed a considerable quantity of toxins which have begun their harmful work on the nervous centers with great promptness. In cases in which, at the time of operation, although clinically having every evidence of general peritoneal involvement, we find, in consequence of the lack of the customary adhesions, coils of more or less uninvolved intestine, the possibilities of a favorable manifestation of the protecting power of the peritoneum are very considerable, and it is under such circumstances that most of the so-called cases of general peritonitis are cured.

We must remember that there are several

elements in cases of general peritonitis which add to and in fact constitute the basis of the gravity of the disease, beside the condition of the peritoneal membrane itself. There is more to do in fighting this disease than simply to remove the inflammatory products in the peritoneal cavity, and to prevent their reaccumulation. Tympanites from intestinal paresis with the consequent absorption of toxins from the putrefying intestinal contents is a very serious element in the disease, dangerous and unsatisfactory to treat. If this condition is well developed it would be impossible to put any quantity of salt solution into the abdominal cavity and then close the wound.

The consensus of opinion at present in regard to the disease under consideration seems to be that it is almost impossible to save a case of general peritonitis, and that our chances of success by what are now commonly accepted methods of treatment are inversely proportional to the extent of peritoneum involved. Surgeons are apparently pretty well agreed that it is best not to resort to general abdominal irrigation, if possible, and that in any case the cleansing of the peritoneum shall be first undertaken carefully and methodically from the point of infection outward. If we can ever have an apparatus to supply hot salt solution continuously and thus establish the same system that has been used in joints, we might save some otherwise hopeless cases of general peritoneal inflammation; but until we can the weight of the evidence seems to be that there must be some provision for drainage.

RECENT RESEARCHES ON THE GENESIS OF QUININE AMAUROSIS.

In an editorial in the *Ophthalmic Record* for December, 1899, DE SCHWEINITZ gives us a good *résumé* of this interesting subject. He says that in the *Ophthalmic Record* for August, 1898, our knowledge of experimental quinine amblyopia was summarized, and special reference made to Ward Holden's researches communicated in the preceding July to the American Ophthalmological Society. This observer, it will be remembered, found that, to quote his own words, "with the lessened but not obliterated blood-supply due to spasm of the vessels in quinine poisoning, the less resistant elements of the inner layers of the retina, the ganglion cells and nerve fibers, break down, while the cells of the inner nuclear layers are not visibly affected. An ascending degeneration of the optic nerve fibers follows the retinal changes. No histological alterations at this period are found in the retinal vessels, or in those of the optic nerve." This atrophy of the optic nerves Brunner had long before demonstrated in experiments performed at a time when the newer histological methods employed by Holden were unknown, and, therefore, is probably to be regarded as a secondary effect of the toxic action of this agent, which, according to Holden's researches, exerts its primary influence on the deeper portions of the central layer of the retina—that is, on the ganglion cells and the nerve fibers. In this editorial no mention was made of the paper of De Bono, published in the *Archiv. di Ottal.*, Palermo, 1894, II, pp. 171–227, in which on the basis of experimental researches he announced that the retinal ischemia evident in quinine poisoning was not the sole cause of the functional disturbances, inasmuch as the latter may disappear while the ischemia still remains, and in which he ascribed the visual disturbance to alterations in the percipient end-elements of the optic nerve, because in frogs poisoned by quinine there is lack of movement in the pigment molecules of the pigment epithelium. In other words, he believes that quinine produces a paralyzing influence on the neuro-epithelium of the retina.

Recently De Bono (*Archiv. di Ottal.*, Palermo, 1899, VI, pp. 398–409) has renewed the discussion, and has presented further experimental proof of his theory, because he felt that its firm substantiation required additional evidence that the alterations were present only in the neuro-epithelium. Moreover, he desired to employ the refinements in histological investigations which had appeared since his original paper. He therefore induced acute poisoning in dogs by means of hypodermic injections of quinine, brought about blindness in two hours, killed the animals in this condition, and removed the eyes, the optic nerves, and pieces of the cerebral cortex. These tissues were properly prepared for microscopic examination and stained in various ways, particularly with methylene blue, with thionin, and with Delafield's hematoxylin. The cerebral cortex was treated by the Golgi-Cajal method, the optic nerves after the manner of Marchi, and other specimens were stained with safranin. Similar tissues from normal dogs were treated by the same methods. Under the microscope the ganglion cells of

the retinas of the quinine dogs, prepared in this way, killed two hours after the injection of quinine in sufficient quantities to produce acute blindness, presented exactly the same appearances that they did in normal dogs. Only after a long time (four days) was De Bono able to note a slight breaking down of the chromatic bodies, and he never met with any profound alterations in the cellular protoplasm. In the other elements of the retina no deviations from the normal could be observed. On the other hand, he found extensive lesions in the ganglion cells of the cortex, even after the lapse of only two hours, with marked alterations in the chromatic bodies and changes in the protoplasm. The optic nerves examined after the manner of Marchi exhibited no degeneration, and the preparations stained with safranin gave the same negative result. He therefore concludes that even if it is admitted that some of the fibers of the optic nerve, long after the occurrence of intoxication, show nutritive changes, and even if these changes are constant, they are not sufficient to invalidate his hypothesis that quinine paralyzes the neuro-epithelium of the retina to the exclusion of the other tissues of this membrane; and he is satisfied that he has given a rational explanation of the pathogenesis of acute quinine blindness, and one, moreover, which furnishes a basis for therapeutic consideration.

That the ganglion cells of the retina are not demonstrably affected as early as two hours after a single toxic dose of quinine is evident also from Ward Holden's experiments. Such lesions first appeared on the third day in the form of degenerative changes —changes, however, which De Bono failed to find in his animals as late as the fourth day. This discrepancy might at first sight be explained by the fact that he gave but one dose of quinine and did not repeat it. Indeed, he objects to the repetition of the dose, because he maintains it produces a subacute form of quinine poisoning and not true acute toxemia.

That this explanation is not entirely satisfactory is evident from the fact that Ward Holden found ganglion cell changes in a dog killed on the third day after a single toxic dose, some degree of vision having returned, and in a dog killed on the fourth day after four injections. The first dog was killed with chloroform, the second by bleeding. Two observers may, however, readily disagree in their interpretation of beginning alterations in the retinal ganglion cells, when we remember that there is not absolute accord in regard to the histological structure of these bodies; witness, for example, the varied descriptions of Dogiel, Bach, and Lodato. Later on we know there is complete disappearance of the ganglion cell layer and degeneration of the optic nerve fibers. In Holden's dogs the latter lesion began on the seventeenth day, and in the writer's animals it was marked before the end of a month, atrophy being almost total at the end of two months. Curiously enough, De Bono failed to observe this atrophy, but again, it must be remembered that his observations relate particularly to the very earliest stages of quinine amaurosis when this is caused by a single dose, and not to what he calls subacute or chronic quinine poisoning—that is to say, to quinine blindness produced and maintained by a repetition of the dose of the drug.

That repeated administrations of quinine, however, are not necessary to produce optic nerve atrophy is evident from one of Holden's experiments, in which the dog became permanently and totally blind from a single injection, with degeneration of the medullary sheaths of the optic nerves. In his first quinine research (1890) Dr. de Schweinitz described thrombi in the central vein of the optic nerve, and in his second paper (1891) thickening and collapse of the nutrient arteries of the nerve, and occasionally (two specimens) obstruction of the central vessel with a partially organized thrombus. De Bono, who has also found thrombi in the veins of the sheath, thinks such lesions might serve to explain the permanent blindness which occasionally results from quinine. Ward Holden, on the other hand, failed to discover histological alterations in retinal vessels or in those of the retina. To quote from his paper: "The thin-walled central vein of the optic nerve was often found empty and collapsed, and the delicate connective tissue about it, with its small vessels, owing to its being stretched and apparently increased in amount, sometimes suggested the appearance of an organized thrombus in the vein, but this same appearance was noted also in healthy dogs." Evidently the vascular changes in quinine amaurosis require further investigation, although, even if they occur, they must be of secondary importance.

If all of the observers are correct, the order of events in quinine blindness would seem to be the following: Paralysis of the neuro-epithelium of the retina manifest two hours

after the administration of the toxic dose; degeneration of the ganglion cells and nerve fibers beginning on the third day, which gradually increases; and finally, degeneration of the optic nerve fibers beginning as early as the seventeenth day and going on to complete atrophy, not only of the optic nerves but of the tracts.

THE CLINICAL SIGNIFICANCE OF FEVER.

The *Philadelphia Medical Journal* of December 23, 1899, contains an article by OSBORNE in which under the above title he in reality discusses the therapy of fever. He says that if the fever is a continued one, or even continuous for a few days, then we must analyze the conditions. Is this amount of fever due to the germ, to the local inflammatory conditions, or to the disease *per se*? If to any one of these, our first duty is to keep the patient cool and quiet; and how important quiet is, when we consider that every excitement causes restlessness, and this means muscle movement through which heat production is increased! It will frequently be necessary to give hypnotics, not only for the brain rest, but for the good to be obtained from an absolute muscle rest. The bowels should be carefully kept cleaned out, not alone for the relief of the liver, and therefore the blood, but to prevent fermentation, decomposition, and resorption of all of the products of bowel infection. A carefully regulated ingestion of ice or cold water also tends to diminish the temperature. If the temperature still keeps too high we can, in short fevers, use the coal-tar products in proper dose a few times, perhaps, noting the effects on the heart, viz., the diminution of its strength and the effect on its rapidity. The result on the temperature is always satisfactory—an increased heat loss through the dilating of the blood-vessels and the promoting of perspiration. Antipyrin is the most efficient in depressing the temperature, but the profuse perspiration that it causes is often very prostrating. Acetanilid does not cause as profuse sweating, but it is more directly depressant to the heart, hence it is well to combine it with a little caffeine or other cardiac tonic. Phenacetine is the safest of these three so far as depression is concerned. If a temperature is so high as to be dangerous to life, even though brief in duration, as occurs in insolation, in which such a chemical or nervous change has taken place from the external heat that heat loss seems to be impossible, nothing is so effectual or is so likely to save life as immersion in a tub of cold water gradually made colder by ice. If the heart can withstand the previous intense temperature we can often hold the patient until his vasomotor system and heat control are reestablished in normal condition.

If we now decide that this fever is in excess of that due to the disease *per se*, we must seek the additional cause, and with each disease we know where to seek its local manifestations. In the varied local inflammations it would seem to indicate pus, as in appendicitis, pleuritis, synovitis, otitis media. In typhoid fever and dysentery it means ulceration with decomposing membrane and slough and absorption of toxins and pus products; in tuberculosis it means some closed up or incompletely evacuated pus cavity or collection and streptococcus fever. In diphtheria, follicular tonsillitis, and scarlet fever it means a putrid, ill-cleaned membrane and exudation. We cannot too strongly urge the same necessity for cleanliness and antisepsis for diseases with local suppurative processes as is so well understood in surgery. The endeavor has been to show why it is that in all fevers not ephemeral it is theoretically good treatment to keep the bowels free from fermentation and putrefaction. Still more necessary is it to keep the small intestines as clean as possible in typhoid fever, and any treatment that gives free daily movements of the bowels in this disease will favorably modify the course of the disease.

In typhoid fever constipation keeps the partially digested milk or other nutriment long in the intestines, the mucus and ulcerative sloughs remain *in situ*, and thus beautiful culture grounds for all sorts of bacilli and cocci are formed, while in addition the colon bacillus adds its toxins to the rest. Next, fermentation increases and gas is formed, and tympanites occurs with its discomfort and danger of perforation and of hemorrhage from distention; meanwhile the action of the heart will be impaired as a consequence of abdominal distention. All of this increases the fever and the cerebral toxemia. If one has a doubt of what such bowel stoppage causes he has but to recall instances in which a case of irregular chills, heavily coated tongue, profound headache, high and continued fever, concentrated urine, constipation, and tympanites has been proved by absence of the malarial plasmodium from the blood and the negative Widal serum re-

action to be a case of "bowel infection," a recognized entity. The treatment of this bowel infection is the use of free purges and bowel antiseptics, by the means of which the system will gradually throw off the toxemia. So in typhoid fever, cleanliness of the bowels will reduce and keep down the temperature and hasten the healing of ulceration. Calomel is the best purgative at first, but in a few days castor oil every second day (rendered palatable with oil of wintergreen and saccharin) is the safest and best laxative. Too much catharsis can easily be stopped by small doses of morphine. Salol is Osborne's preference as an antiseptic for the bowels, if the kidneys are healthy. This treatment will generally alone keep the temperature below 101°, especially if combined with good rest and sleep. If it does not we should use cold applications, as experience teaches that a continuous fever over 101° is dangerous to the organism. How we shall apply the cold, whether by cold sponging, cold compresses, cold coils, cold sprinklings, wet sheets, or cold baths, must depend upon the degree of temperature to be combated. Repeated flushings of the large intestine with normal saline solutions, or, if deemed best, with medicated solutions, will not only locally treat a dysentery properly, but will keep the temperature down. If the temperature is high use cold water.

In diphtheria, whether or not antitoxin has been used, it is inexcusable to leave a membrane to take care of itself. The danger of infection from a suppurating membrane is worse than the disease itself, and the fever from such absorption of putrefaction products is greater than that from the diphtheria bacilli, which seem to be somewhat depressant in effect. The membrane should be kept as clean as possible with boric acid gargles and insufflations, followed by hydrogen dioxide by spray or gargling, and these repeated every one and one-half to two hours. The streptococcus of follicular tonsillitis is a great fever producer, but the more careful we are to clean the tonsils the quicker the fever subsides. The immediate lowering of the temperature by the evacuation of pus wherever found is too well known to discuss. Now that in the last few years we have learned not to fight every rise of temperature simply because it is above 98.4°, let us still be careful not to interfere with the temperature too soon, unless positive discomfort is present, lest we hinder our diagnosis.

ON SOME OF THE USES OF PEROXIDE OF HYDROGEN IN DERMATOLOGY.

BULKLEY writes in the *Journal of the American Medical Association* of December 23, 1899, of the use of hydrogen peroxide. As he well says, peroxide of hydrogen is an oxidizing substance, and destructive of organic life. All are probably acquainted with its action in the presence of pus, when it causes a bubbling or sizzling, which can be heard; it is not so generally known that about the same occurs when it is brought in contact with a freshly bleeding surface. As is known, its action is parasiticidal and antiseptic, and it has found great use in connection with the treatment of suppurating surfaces and cavities, and in surgical procedures. There are some conditions which come under the care of the dermatologist where it is of great service. The first of these, as might be expected, is ulcer of the leg, whether varicose or from other cause. Here the thorough application of it twice daily will sometimes be followed by the most brilliant results, when associated with other proper treatment. It should be applied in full strength, as furnished, on a bit of absorbent cotton thoroughly soaked with it, and laid over the raw surface for five minutes, morning and night. The application should be changed several times with each dressing, in order that the affected surface may be thoroughly soaked and permeated by the peroxide. The same holds good in regard to ulcers of various characters, and in obstinate syphilitic ulcerations he has also seen the greatest benefit from the free use of the peroxide. In many cases of superficial epithelioma, where a radical operation by excision is not practicable or is not allowed, the peroxide is of great value in promoting healthy cicatrization after the use of milder destructive agents. After curetting the surface may be well soaked with it before applying a dressing, and if the surface is slow to heal, the patient may apply the same morning and night, before putting on the appropriate ointment. Also after mild cauterization the peroxide hastens the fall of the slough and subsequent cicatrization. After operation on lupus the peroxide is also a very valuable adjuvant, and in a recent case where the lupus nodules were destroyed by frequent applications of a solution of arsenous acid, and the diseased tissue was about removed, the free use of the peroxide produced healing in a remarkably short time.

The bleaching properties of peroxide have

long been used for changing the color of the hair, and advantage may be taken of this in connection with the growth of superfluous hair on the face of women. In a very considerable number of cases it has been employed where the hair was too fine to admit of its removal by electrolysis, and yet where it was very perceptible and troublesome. Especially on the upper lip of girls this condition is often the source of much distress. Here the light, downy moustache will be composed of innumerable fine hairs, perhaps with a few stronger ones at the ends, and it is quite impracticable in the early stages to practice electrolysis; but the free and repeated use of the peroxide will produce a very material improvement in the appearance in a very short time. By blanching the hairs a moustache which was very striking will hardly be noticeable at a short distance. But another advantage in the use of peroxide in hirsuties, which has not been heretofore mentioned, is a certain retarding influence which it exerts on the growth of the hair. This has been noticed in a number of instances for the past two or three years, much to the delight of several patients. This result is slow, but with a faithful continuance of the remedy the fine growth of hairs certainly diminishes; some of the stronger ones seem to grow, and they can be removed by electrolysis. In applying the peroxide to such cases it is often well to begin by diluting it one-half with water, and increasing the strength gradually, for when a strong specimen is applied to the healthy skin it will sometimes cause a desquamation, which is unpleasant.

Chloasma is another condition of the skin in which the action of the peroxide is sometimes very satisfactory, but sometimes it seems to fail. To be effectual it should be very freely applied, and allowed to soak into the skin, by means of cotton soaked in it, as spoken of for ulcers. It will cause somewhat of a desquamation, but this can be easily remedied by the use of a little lanolin and rose ointment, or by a borax and glycerin lotion. In speaking thus of the local action of the peroxide it is not desired to overestimate its value, but simply to present experiences in the use of what has at times been found valuable in practice.

TYPHOID FEVER IN THE YOUNG.

Pediatrics for December, 1899, contains an article by JACOBI on this theme. He believes that the food should be liquid. The invariable rule is, with adults also, to insist upon that demand until apyrexia has lasted ten days. The patient should be encouraged to drink water frequently; the admixture of from eight to twelve drops of dilute hydrochloric acid to a tumblerful of water or sweetened water is a pleasant and disinfectant drink. Of albuminoids, peptones and peptonoids, and of beef juice, only a certain quantity is digested or absorbed; the good that is to come from them is not from swallowing, but from digesting. The lips and tongue should be kept clean. Older children will wash and gargle. When the tongue is red and dry and fissured, one or two daily applications may be made with a clean camel's-hair brush of a one- or two-per-cent solution of nitrate of silver. The nose should be kept clean, washed out with normal salt solution in urgent cases. To guard against hypostasis of the lungs and the cord, the posture in bed should be changed from time to time. A purgative dose of calomel in the very beginning will act beneficially; not so after the second half of the first week, when diarrhea and hemorrhages may be caused by it. Constipation requires warm water enemata daily; diarrhea frequent irrigations with water of from 95° to 100° F.

When the discharges are offensive, thymol or permanganate of potassium may be added in a proportion of 1:3000–4000. Internally, bismuth, sulpho-carbolate of zinc, salol, and naphthalin are indicated. Bronchial catarrh demands no special treatment in most cases; if the secretion is viscid, and dyspnea present from that cause, camphor is serviceable. Collapse requires strong stimulants, by mouth and subcutaneously; diluted alcohol, camphor in sweet almond oil 1:4, and the salicylate or benzoate of sodium and caffeine, soluble in two parts of water, answer best for that purpose. Insomnia, great excitement, and consecutive psychoses may require chloral hydrate. When the heart is feeble, croton chloral should be selected instead. When these symptoms are accompanied with heat of the head, cold applications to the head, ice water, ice-bags, are soothing. The head should, under such circumstances, be kept as high as comfort permits. Sopor or coma should be treated with cold affusions, while the body is submerged in water of 90° to 95°.

Is it desirable to resort to antipyretic treatment? If so, in what class of cases—mild, medium, or grave? This latter classification,

however, should not exist, for the apparently mild case may turn out to be a grave one. Or is it desirable to allow high temperatures to persist? The *vis medicatrix naturæ* has been eulogized in infectious fevers. However, the wholesome influence of intense heat on bacteria and toxins has become very doubtful, and good observers, like Flugge, deny the new gospel of the increase of phagocytosis by high temperature absolutely. Nor is the disintegration of tissues by heat alone successfully contradicted. Thus, after all, we need not enjoy the presence of high temperatures as a blessing, disguised or undisguised, and should reduce them. This much is certain, that the comfort of the patient is enhanced, and grave nervous symptoms alleviated, when the hot dry skin becomes cooler and moist in proportion to the reduction of the general temperature. What are the means by which we can effectually obtain it? The number of antifebrile medicaments has grown immeasurably; the cautious practitioner will do well, however, not to embark on the dark sea of unknown territories, guided by nothing but the flashlight advertisements of the drug manufacturer. Some of the new remedies are actual dangers. Acetanilid is a poison, like all anilins; it changes hematin into methemoglobin, and thus causes the cyanosis that is so frequently noticed. Antipyrin is perhaps the safest; sodium salicylate annoys the stomach and the kidneys, which are very liable to suffer from the typhoid toxin alone. Quinine acts well during intermissions and remissions, not, however, when high temperatures are continuous. The cardiac stimulants—digitalis, strophanthus, sparteine, camphor, alcohol—which improve the general and cutaneous circulation, and thereby the radiation of heat from the skin, are mighty weapons in the hands of the intelligent medical adviser, who moreover need not limit himself to the few remedies mentioned.

All of these remedies, however, do not exhaust our resources; indeed, they are only of minor importance. Without knowing all of it, the old poet exclaimed "*hudor ariston*"—the water is the best. Cold water and warm water are our most reliable and at the same time the safest antipyretics. Stress should be laid on the latter title, because many of the very apostles of hydrotherapy, perhaps influenced by shaky phagocytosis and toxin theories, belittle it in comparison with the nerve stimulating powers of water. Now cold bathing is frequently contraindicated; it is not borne when the heart is feeble from whatsoever cause; for instance, long duration of the disease, complications with pneumonia, peritonitis, or hemorrhages, previous bad health, or, in the adult, excesses.

No stimulant given before or during the procedure is certain to counteract the paralyzing effect on the peripheral circulation. When after a cold bath the feet remain cold and the pulse small, the bath is contraindicated and does harm. The patients in public hospitals are quite often of a low vitality, and feel the cold bath as a shock; at all events most of those who arrive in the hospital after a week or two have passed the time when the cold bath might have done good. Of this nature is the latest experience of I. Rudisch in the Mount Sinai Hospital. He says: "The Brand treatment reduced the mortality a little over two per cent. This reduction occurred in the cases which had been sick two weeks or longer, outside the hospital. Since the introduction of the Brand treatment there has been an increase in the number of cases of pneumonia and phlebitis, and a decrease of those of furunculosis and nephritis. Relapses have increased 2.5 per cent. The death-rate in the relapse cases before and since the introduction of the Brand treatment is practically the same. It has not reduced the number of complicated cases as a whole, but has decreased the number of deaths from toxemia in the causation of the mortality of typhoid fever."

This does not speak well for the indiscriminate use of cold water for hospital patients. The dangers of cold bathing are not encountered in warm bathing. This is not the place to prove for the thousandth time that a bath of 95° or 90° F. when of sufficient, even when of short, duration will reduce a temperature of 104° or 106°. It is simply a fact. Such a bath may easily be given every three or five hours; even apparently mild cases should have two or three daily, from the beginning to the end of the illness. They reduce the temperature, the accompanying frictions stimulate the cutaneous and general circulation, the general condition is improved, the so-called typhoid state relieved, and relapses become less frequent.

Warm bathing should be *the* principal treatment of all typhoid fevers, not to the exclusion, however, of occasional medication calculated to have similar effects. The combination of frequent and protracted bathing with proper medication will always remain appropriate, though our resources should, as

we expect, be increased by serotherapy. The searching for it and the frequent insufficiency of medication in skilful or unskilled hands, both by thoughtful and routine practitioners, have caused us often to neglect our most active helps. Even where serotherapy has scored its most deserved laurels—for instance, in diphtheria—the almost boastful limitation to the use of antitoxin, to the exclusion of other internal and external treatment, is a mistake. What is to be treated is not the bacillus, but the organism invaded by the bacillus; and the clinician should know that bacteriology is an indispensable aid to clinical medicine, but not clinical medicine itself. Thus, when we shall find an antitoxin for the typhoid bacillus, we shall still require adjuvant treatment for the typhoid man, woman, and child.

THE PRINCIPLES OF THE TREATMENT OF FRACTURES BY SYSTEMATIC MOVEMENTS AND MASSAGE WITHOUT APPARATUS FOR IMMOBILIZATION.

CHAMPIONNIERE (*Medical News*, Jan. 6, 1900) as his experience has grown wider has seen better and better results from the treatment outlined by the head of this article.

Moderate movement favors the repair of fragments of a bone. Where movement is permitted the callus will be greater in quantity, will be more solid, and will be more rapidly thrown out. It also preserves the vitality of the limb and the suppleness of the articulations, the muscles, and the tendons. In every case, therefore, in which moderate movement does not threaten to cause the occurrence of deformity the limb should not be immobilized. On the contrary an attempt should be made to keep up passively if not actively the movements that are necessary to the vitality of the parts.

The author states that massage should never give pain. It should always be followed by an attempt at passive movement of the joints of the limb, which procedure must also be accomplished without pain. If deformity threatens to result, that and that only should prevent the surgeon from using this method or hamper him in its application. It is held that by massage and mobilization alone, without any apparatus, can be treated the large majority of fractures of the wrist and the radius, and Colles's fractures. The larger number of fractures of the clavicle are amenable to the same method. In four years, at the Hospital Beaujon, Championnière has had in his service more than sixty cases of fracture of the clavicle. He has treated all of them without apparatus, using only a simple sling, and not once having had occasion to apply any other form of treatment. All the fractures of the upper extremity of the humerus as far down as the insertion of the deltoid may be treated in this same manner. All the fractures of the lower extremity of the humerus, all the fractures of the elbow including those of the olecranon, most of the fractures of the fibula, a large number of the fractures of both malleoli, many of the fractures of the knee, and all of the fractures of the scapula, are best treated in this way. Many of the fractures which cannot be treated with absolutely no immobilization yield better results when treated by a mixed method. The apparatus should be used after a preliminary massage, and removed from time to time in order to permit of further massage.

The author has treated about 1200 patients in all. He closes his article by again repeating the statement that the complete suppression of all pain during the primary and secondary treatment of fractures is the capital point in the matter.

EXTIRPATION OF THE GASSERIAN GANGLION FOR NEURALGIA.

MUGNAI (*British Medical Journal*, Jan. 6, 1900; quoted from *Il Policlinico*) reports the case of a woman aged sixty-seven, admitted into hospital November 3, 1898, for incurable trigeminal neuralgia on the left side. About three years ago she suffered from severe infra-orbital neuralgia, for which the author excised the infra-orbital nerve with complete success until recently, when the old neuralgic pains recurred, almost driving the patient into madness. All other remedies proving ineffectual, it was decided to excise the Gasserian ganglion. This was attempted by the Krause-Hartley method on November 18, but after exposing the second and third branches of the fifth nerve the venous hemorrhage became so troublesome that the author could not proceed with the operation; the wound was therefore plugged and temporarily closed. This operation lasted eighty minutes. On November 22 (four days later) the wound was reopened and the Gasserian ganglion exposed and removed without difficulty. The pains ceased immediately, and have not recurred. Some impediment in speech and left-sided ptosis persisted for a few days

after the operation. But when the patient was seen in June, 1899, there was no return of the pain, and the left side of the face had almost reacquired its sensibility. The second operation only lasted twenty minutes. The author attributes the success of the operation to its being done in two stages. By this method we can see better, and so can remove the ganglion in its entirety. No gross changes were found in the ganglion itself.

CONTUSION OF THE ABDOMEN.

Dubujadoux is reported by CHAUVEL (*Revue de Chirurgie*, No. 12, 1899) to have operated on four cases of contusion of the abdomen, due to the kick of a horse, and complicated by perforation of the intestines. Three of these recovered. The fourth died some hours after intervention. One case was operated on one hour after the accident, one fifteen hours, one seventeen hours, and one thirty hours.

CARPALGIA OF ADOLESCENCE.

Under this title OLLIER (*Revue de Chirurgie*, No. 12, 1899) describes an affection which he states is by no means uncommon. As a characteristic example he mentions the case of a young girl, not rheumatic, who suffered from tarsalgia, which was cured by immobilization. Some time later she suffered from pain in the wrist. There was no swelling, but the pain became more severe on writing, playing on the piano, etc. She recovered from time to time, but when she was tired she suffered from pain in the wrist. There was neither gonorrheal infection nor tuberculosis.

Ollier attributed the pain to the irritation of the growing bony tissue—*i.e.*, traumatism or overexertion.

In the short bones the zone of growth is peripheral. There is no epiphysial cushion, hence such bones are markedly influenced by continued or severe pressure. Carpalgia customarily appears from the thirteenth to the eighteenth year, and may be followed by true deformity; it is more commonly observed in working girls than in those who lead a life of leisure. A posterior subluxation of the cuboid bone is by no means uncommon. Usually rest will be followed by relief. Often immobilization is necessary. The pain may cease spontaneously when deformity has been produced. The pain is not always the same. Ordinarily, pressure applied over the second row of the carpal bones will produce it; at other times, applied over the metacarpals. In one case the pisiform bone was most tender.

Gangolfe has observed this affection once involving the os magnum. The pain is at times extremely severe.

RESECTION OF THE INTERNAL PUBIC NERVE FOR THE TREATMENT OF PAINFUL CYSTITIS.

ALBERTIN (*Revue de Chirurgie*, No. 12, 1899) reports the case of a man whose life was rendered miserable by intolerable vesical pain and harassing, frequent micturition. After failure of all the therapeutic means known to him, Albertin cut the perineal branch of the internal pubic nerve. The result was prompt and excellent, the patient being entirely cured.

Chandelux, in a similar case, obtained equally good results by a forcible stretching of the sphincter ani.

Rochet, who first proposed this operation, states that its principle is based upon the suppression of the tetanic contraction of the urethral or perineal muscles. The nerve may be divided either before or after its bifurcation; if in the latter position, the rectal fibers are not affected.

Ollier, in cases of obstinate cystalgia, practices perineal section followed by dilatation of the vesical neck, and obtains cures which have lasted for eight to ten years.

THE TREATMENT OF SUPPURATIVE PROSTATITIS.

GUIARD (*Annales des Maladies des Organes Génito-Urinaires*, No. 12, 1899), basing his conclusions upon a single case, suggests as the simplest and safest treatment of prostatic abscess, and one thoroughly efficient, puncturing through the rectal wall by means of a trocar, followed by a thorough irrigation with mild mercuric solution. By this proceeding he accomplished a prompt and permanent cure.

HEMOPHILIC ARTHRITIS.

NOVÉ-JOSSERAMB (*Revue de Chirurgie*, No. 12, 1899) observed a child ten years old, who, following measles, at the age of six months exhibited signs of hemophilia. This child suffered from joint effusions which would develop spontaneously from traumatism or without obvious cause, and would

slowly disappear. There was arthritis of the knee of a year's standing.

The prognosis of such cases is grave. Surgical treatment is absolutely contraindicated. In at least one case which had been treated by actual cautery, under the mistaken impression that the affection was a white swelling of the knee and required counter-irritation, the dropping of the scabs, caused by the cautery, was followed by fatal bleeding.

DENTIGEROUS CYST.

BERGER (*La Presse Médicale*, No. 99, 1899) operated upon a boy thirteen years old who had been suffering for a year from a cyst which developed to the right of the medial line upon the anterior surface of the upper maxillary bone, pushing forward the cheek and pressing on the palatine vault. The trouble began with a swelling of the cheek, which extended to the furrow, separating the cheek from the ala of the nose and finally quite obliterating this. All the teeth were present, but the incisors were deviated somewhat. On lifting the upper lip a bosselated swelling was found involving the mucous membrane of the gum and exhibiting the dark color of cyst of the jaw. The tumor was fluctuating. Most of the anterior wall of this tumor was removed, allowing its gelatinous liquid to escape. The cavity left did not communicate with the antrum, and contained a supernumerary tooth developed in the inferior wall of the cystic cavity. Cleanliness and drainage accomplished the gradual obliteration of this cavity.

Berger holds that there is no clinical difference between the dentigerous cysts and those which have been variously designated as alveolar, periosteal, etc. The situation of the tumor, its relation to the alveolar border, its extension upward, correspond precisely to the periosteal cysts. All these cysts arise from paradental epithelial débris. Care should be taken in opening these cysts not to break into the maxillary sinus, nor to destroy the thinned palate.

THE TREATMENT OF GUNSHOT WOUNDS.

TAVEL (*Revue de Chirurgie*, No. 12, 1899) has contributed a thorough laboratory research upon the question of infection by gunshot wounds, and the possibility of avoiding or lessening this infection by active antiseptic treatment. He notes (as have many other observers) that a bullet previously infected and fired from a modern small arm carries its infection with it. In other words, neither the heat engendered by the explosive and the resistance of the air, nor that due to the impact with a more or less solid body, destroys the life or virulence of germs placed upon a missile before it is fired. He observes, however, that there is a distinct retarding effect. This is not in accord with Messner's conclusions, to the effect that germs thus implanted develop as quickly as those used in control experiments.

Gunshot wounds are peculiarly subject to infection: first, because foreign bodies are likely to be carried in with the missile; secondly, because they are customarily complicated by hematoma or blood infiltration. Experimentally it is shown, for instance, that the presence of hematoma so strongly favors germ growth that a dose of tetanus bacillus but one-thousandth part as strong as that just sufficient to kill when injected into healthy tissues will, if inoculated upon a blood tumor, cause the death of the animal from tetanus. The same fact is shown by Tavel in regard to other germs.

To determine how far portions of clothing are carried into wounds, a dog was shot through the thigh with a ball of six millimeter caliber from a distance of one hundred meters. This dog was wrapped in cloth. Portions of the fabric were found driven into the tissues to a distance of two centimeters about the wound of exit, though the track of the bullet was thirty centimeters long.

In the second experiment, in which the bullet traversed the lung, the fabric was found at a distance of three centimeters from the course of the bullet, thus suggesting the hopelessness of a thorough cleansing and disinfecting treatment.

Lardy is quoted to the effect that out of 469 gunshot wounds, 95 were infected; 13 of these by morsels of cloth, 3 because of hematoma, 29 because of splinters of bone, 22 because of bullets remaining in the tissues. He holds that it is possible for fragments of cloth to traverse the entire wound without causing infection, but if they remain in the wound they are quite sure to result in suppuration.

Schwarzenbach shows, however, that the implantation of a foreign body in a gunshot wound is dangerous, not in itself, but because of microbes which it contains and of

the especial traumatism which accompanies such wounds. The examination of soldiers' clothes made by Schwarzenbach shows that these practically always contain pathogenic germs.

A careful investigation as to the possibility of disinfecting gunshot wounds demonstrated the complete failure of all the methods that have yet been advised.

Tavel concludes, as a result of his experiments and study, that the best treatment of a contaminated gunshot wound is to do nothing, though iodoform gauze packing does not seem to be particularly injurious. All the physiological and chemical means employed for the purpose of accomplishing disinfection simply increase the danger to the patient by lessening the resistance of the living cells to the germs which have been carried to the depths of the wound. This general principle, of course, applies to uncomplicated wounds and is strictly in accord, not only with the conclusions Bergmann derived from a wide experience in the Russo-Turkish war, but with those of our own surgeons in the late Spanish-American war. In complicated cases, drainage and antiseptic packing with iodoform gauze are methods the value of which is proven both by active practice and experimental research.

FOREIGN BODIES LEFT IN THE ABDOMEN AFTER CELIOTOMY.

NEUGEBAUER (*Centralblatt für Chirurgie*, No. 3, 1900) reports 100 cases of foreign bodies left in the abdomen after celiotomy. Fifty-eight patients recovered, forty-two died. Twenty-nine times a sponge was lost, twenty-eight times a tampon or gauze compress, four times a drainage-tube, and nineteen times artery forceps. In a number of instances two foreign bodies were left in. The sponges were generally recovered by second section. It is noteworthy that the majority of tampons and compresses were discharged spontaneously through the rectum.

THE TREATMENT OF ERYSIPELAS AND PURULENT ARTHRITIS BY PURE CARBOLIC ACID.

PREVOST (*Montreal Medical Journal*, January, 1900) gives the credit of originating this treatment to Phelps, and states that it is based on the fact that alcohol is an absolute specific against the corroding effects of carbolic acid. This was discovered by Powell, who has for years been treating abscesses by the following method: Taking into consideration that the class of cases was of the severest type sent to the hospital from other institutions of the city, and the results in cases treated by the orthodox methods, this plan of treatment is a valuable one and an innovation which should be adopted by the entire profession. Since its introduction at the City Hospital there have been no deaths from erysipelas so treated, and erysipelas cases, following surgical operation, are no longer transferred from the surgical ward to the erysipelas pavilion, but are immediately treated with carbolic acid, and each case has been aborted.

The method of treatment is to apply to a well-cleansed surface of disease with a pledget of cotton and a pair of forceps pure carbolic acid. When the skin begins to turn white and considerable smarting is present, alcohol is used freely to neutralize and wash away all of the acid. The parts are then simply covered with absorbent cotton and a bandage. Any extension of the redness is at once treated in a similar manner. No constitutional remedies are used in any of the cases.

In regard to joints, they are freely laid open and washed out with a weak solution of carbolic acid (two-per-cent). Towels saturated with alcohol are placed around the area of the operation, and the entire joint is swabbed out and injected with pure carbolic acid. After two minutes the joint is freely and carefully washed out with pure alcohol, and finally with a two-per-cent solution of carbolic acid.

In smaller joints a half-inch drainage-tube is employed, which is usually removed at the end of one week, depending entirely upon the condition of the joints. In hip-joint excision a drainage-tube from one inch to one inch and a half, and in the adult even larger, of glass or pure rubber, is inserted down to the acetabulum. Subsequent applications of pure carbolic acid can be made through the large tubes to diseased areas until the granulation forces the tube out. A large number of cases of hip-joint disease treated by this method have been discharged from the hospital within three weeks from the time of operation where perforation of the pelvis had occurred and the head of the bone was entirely destroyed. Such cases heretofore had been excised, and they had remained in the hospital from four months to a year.

Alcohol either neutralizes the carbolic acid

or else acts mechanically, washing it away after the desired effect has been maintained. The strong acid unites with the albuminoids of the skin or tissues, forming new compounds, which are absorbed through the lymphatics, destroying the germ life. Pure carbolic acid cannot be absorbed, but after application of pure carbolic in erysipelas and in septic and tubercular processes the lymphatics begin immediately to be painless, the tissues in the area of disease to shrink, and the pathogenic process immediately subsides. This must be due to a new compound which is formed by the application of pure carbolic acid.

INTESTINAL OBSTRUCTION.

PRUTZ (*Archiv f. Klinische Chirurgie*, 60 Band, 2 Heft) reports in minute detail thirty-six cases of ileus operated on by Eiselsperg. There were eight cases of volvulus with three deaths; seven of invagination with two deaths; eight of internal strangulation with three deaths; and thirteen of carcinoma, tuberculosis, and pelvic sarcoma, with nine deaths. It is noteworthy that eight of the deaths were due to a peritonitis which already existed at the time of operation; one is attributed to the use of the Murphy button.

These cases are of special interest because they represent practically all the work of a single operator for about three years, and if the class of cases treated is considered, show a gratifying percentage of success.

ALKALINE BACTERIURIA.

ESCAT (*Journal of Cutaneous and Genito-Urinary Diseases*, February, 1900) had two cases of alkaline bacteriuria which were extremely obstinate to treatment. One patient had had cloudy urine for twenty years, which gave a viscous and chalky deposit, and on drying formed phosphatic gravel. The second was believed to have an incurable cystitis for at least fifteen years, and presented the same symptoms as the first case — frequency and painful urination whenever there was emission of the sediment. In both cases the urine, which was very cloudy, cleared immediately by the addition of acetic acid. The dried deposit was formed by crystals of ammonio-magnesia phosphate, and micrococci in large masses. There were very few leucocytes in the sediment; sometimes there were streaks of blood. The first patient was fifty years old, and had had several attacks of gonorrhea twenty years before. The urethra was in good condition; the state of the prostate was doubtful. The second had a stricture of large caliber, resistant, which was dilated. The diagnosis made was alkaline bacteriuria. There were present urea-decomposing micrococci, determining, with the alkalinity but slightly marked, the precipitation of the phosphates. There had been no phosphaturia and no pyuria, and in spite of the imperious micturition and vesical pain, with streaks of blood, there had been no true cystitis. Neither instillations nor lavage with silver nitrate, nor the administration of salol, nor mineral waters, proved of any use. Under daily irrigations of the bladder with boric solution without a catheter the symptoms gradually subsided.

ANESTHESIA OF THE SKIN BY THE USE OF AN ELECTRIC CURRENT.

GONKA (*Centralblatt für Chirurgie*, No. 4, 1900) has endeavored to anesthetize the unbroken skin by the use of cocaine solution and the galvanic current. A wad of cotton was saturated in a four-per-cent solution of cocaine, placed upon the surface which it was desired to affect, and over this was placed the positive electrode of the battery, the negative electrode being applied to any other portion. The amount of anesthesia accomplished depends upon the strength of cocaine used and the amount of current. A current of ten milliamperes continued for ten minutes enabled the operator to drive a needle through the skin without causing any pain; nor could the burning of a hot glass rod be perceived. Anesthesia did not last longer than five minutes.

ULTIMATE RESULTS OF SURGICAL INTERVENTION IN TUMORS OF THE BLADDER.

MOTZ (*Journal of Cutaneous and Genito-Urinary Diseases*, February, 1900) quotes Pousson to the effect that after operations on vesical tumors the longest survival was from two to four years. The statistics of Albarran and Clado are apparently in complete disagreement with these figures. Albarran showed thirty-six cures out of forty-eight cases of benign tumors, and twenty-three cures out of ninety-seven cases of malignant tumors. Clado, out of sixty-seven benign tumors, gave forty-nine cures, and of 111 malignant tumors twenty-eight cures. The author examined the records at the

Necker Hospital and found fifty-five cases which had undergone operation. In thirty-five of these at least three years had elapsed, and ten patients were found who were still living. Of these thirty-five, eighteen were histological cases of epithelioma, of which only one had survived three years. Of the papillomata there were nine, with seven survivals and four recurrences.

Dr. Malherbe believes that epitheliomatous tumors can only show bad results; it is not so, however, with papillomata. He reported cases remaining well two and a half, three, or three and a half years. Two of these had papilloma. Another patient with an immense papilloma was still well at the end of a year. Another case reported at the meeting of 1897 was an old man with an encysted tumor of the bladder, springing up beneath the mucous membrane, having the volume of a pigeon's egg and occupying the pubic arch. The tumor had been removed and the patient still survives, now over two and a half years.

THE TREATMENT OF ANEURISM BY SUBCUTANEOUS GELATIN INJECTIONS.

FUTCHER (*Journal of the American Medical Association*, Jan. 27, 1900), in an article on the treatment and cure of aneurisms, states that the credit of having introduced this method to the medical profession is due to Lancereaux, of Paris, who gives the following directions for the making of gelatin solution and the giving of the injections: The solution is made by dissolving four to five grammes of white gelatin in 200 cubic centimeters of 0.7-per-cent sodium chloride solution, and sterilizing thoroughly at 120° C. The flasks are kept for several days at a temperature of 38° C., and any in which the gelatin becomes turbid or fails to harden in the cold are discarded.

For giving the injections he uses a 500 cubic centimeter sterilized flask, with a tight-fitting rubber stopper through which two glass tubes pass. One of the glass tubes extends to the bottom of the flask, and is connected by rubber tubing with a proper sized needle. To the other short glass tube a stiff rubber inflating bulb is attached. In order to purify the air a glass bulb filled with absorbent cotton is interposed between the rubber bulb and the flask. The temperature of the gelatin solution must be 37.6°. According to Lancereaux no pain should be produced by the injections. With proper asepsis and antisepsis there should be no general or local reaction. After the injection the patient should have absolute rest, and palpation of the aneurism must be avoided. The injections are made at intervals varying from two to fifteen days. Lancereaux thinks that best results are obtained by giving them every sixth to eighth day. He states that, generally speaking, ten, fifteen, or twenty injections are necessary to effect a cure. He advises injecting the gelatin solution into the subcutaneous tissue of the thigh, and never into or in the vicinity of the aneurismal sac.

Huchard emphasized the importance of aneurism patients taking the proper sort of diet. An essential point in the treatment is the lessening of the arterial tension. For this reason all sorts of food which tend to produce toxins which have a vasoconstrictor action must be avoided. Bouillon, fat soups, meat, fish, particularly sea fish, and cheese must not form a part of the patient's dietary. Alcohol, tea, coffee, and tobacco are also forbidden. A strict milk diet is preferable, but fruits and leguminous foods may also be permitted. Drugs which cause a dilatation of the blood-vessels, such as iodides and nitrites, are also useful.

Futcher states that the following conclusions may be drawn from his experience with the gelatin treatment:

1. In not a single instance has the aneurism been cured, although in one case the abdominal aneurism has diminished considerably in size and the case is still under treatment.

2. In seven of his nine cases there was an appreciable diminution in the subjective symptoms referable to the pressure of the aneurism.

3. It seems quite certain that the subcutaneous injection of gelatin solution does materially increase the coagulability of the blood.

4. Contrary to the statement of Lancereaux, we have found that the gelatin injections are frequently very painful to the patient, the pain lasting and being most intense often as late as six hours after the injection.

5. Although Lancereaux states that with strict antiseptic and aseptic precautions there should be no elevation of temperature, we have found the contrary. In several instances the injections were followed, two to four hours later, by a distinct chill, with an elevation of temperature reaching at times

as high as 103° F. In no case was there any local suppuration, and in only one case was there any local reaction.

6. Notwithstanding the fact that there is not yet a case which can be reported as cured, there is some merit in the treatment, and it deserves a further trial.

GOITRE OPERATIONS.

SCHILLER (*Beiträge zur Klinischen Chirurgie*, Band xxiv, Heft 3; quoted in the *Annals of Surgery*, January, 1900) publishes a summary, embracing 869 goitres, of which thirty-three were malignant, six Basedow, fourteen acute inflammation of the thyroid, and the remainder simple goitres. The special predilection of goitres for the female sex and at about the period of puberty is again demonstrated, and in addition the greater frequency of their appearance during the summer months.

As for therapeutic measures, thyroidin is regarded as a more efficient agent than iodine. Two hundred and thirty-six benign goitres were operated on. Puncture, injection, incision, and drainage, now obsolete, are replaced by Socin's method.

Chloroform-morphine narcosis was most often used. The incision varied greatly, the most common being a curved incision along the border of the sternomastoid. The time of cure averaged eleven days for enucleations, and fourteen days for strumectomies. Drainage was always resorted to for three days. The mortality embraced four deaths from pneumonia, one by poisoning (?), and one case of chloroform death in which a persistent thymus was found.

The postoperative complications encountered were secondary hemorrhages, temporary laryngeal disturbances due to contusions, hemorrhages and infiltrations about the nerve. Tetany occurred four times where the removal of the gland was extensive, and twice it was associated with myxedema. In one instance an intra-abdominal transplantation of a freshly removed adenomatous thyroid failed to cure, but with the recurrence of the thyroid growth a cure set in. The simple goitres recurred in twenty per cent of the cases.

The strumites were, with the exception of one case, secondary infections of preexisting goitres, three infected by puncture, two were metastatic, and the remainder were unaccounted for. These cases too were subjected to extirpation, unless the poor general condition permitted only of puncture and drainage.

The four cases of Basedow were all in females of a neuropathic taint. For the relief of these ligation of the thyroid arteries alone was resorted to.

The malignant growths, more common between the ages of fifty and sixty, were most frequently represented by sarcomata, and merely in one-half the cases was the diagnosis made. The difficulty of strumectomy in these cases is gathered from the necessity of resecting the internal jugular vein five times, and often extensive resections of the muscles had to be resorted to in extirpating the glands. Tracheotomy was thrice performed. The mortality was fifteen per cent. Five cases were free from recurrence up to four and a half years; fifteen months may be accorded as the average viability after recurrences. Better results are only to be expected from early diagnosis. Contraindications to operation are metastases associated with venous thrombosis and absence of the carotid pulse; on the other hand, if the tumor is immovable, adherent to vessels and larynx, and the carotid pulse still persist, there is no contraindication.

URINARY ANTISEPTICS.

SLUYTS (*Centralblatt für Chirurgie*, No. 4, 1900), as a result of an experimental research with the ordinary pathogenic microbes found in the urine, finds that salol is distinctly the most effective drug we possess in inhibiting or destroying these growths.

Grosglik, after an extensive experience with urotropin, states that this medicament does not destroy the microbes found in the urine, and that even its inhibiting action is comparatively slight and of brief duration; hence it is of distinctly less potency than salol or sodium salicylate. He notes that the infectious diseases of the urinary tract are not beneficially influenced by urotropin.

STRANGULATED HERNIA IN CHILDREN.

COLEY (*Journal of the American Medical Association*, No. 6, 1900) has operated on eight patients under the age of two years, with one death. The fatal case was an infant eight weeks old and almost moribund at the time of operation, strangulation having existed for two days. In four, or fifty per cent, the sac contained the cæcum, and in three of these four the appendix also was found.

Tariel, in a collection of 128 cases of

strangulated hernia in infants, notes that the cæcum and appendix were found in only eight. In every case on opening the aponeurosis reduction was easy, showing that the neck of the sac, as is believed, was not the cause of constriction. Herniotomy was supplemented by a radical cure, with the exception of one fatal case. The diagnosis is easy, the condition simulating none other excepting hydrocele of the cord. Diagnosis having been formulated, gentle taxis, not longer than two or three minutes, should be tried. If this fails, application of cloths for not more than twenty minutes should be resorted to, and if a second attempt to reduce under gentle taxis fails, chloroform or ether should be administered and preparations made for immediate operation. Coley has personally known of three deaths from strangulated hernia in infants as the result of temporizing.

THE SURGICAL TREATMENT OF APPENDICITIS.

CLUBBE (*Australasian Medical Gazette*, Dec. 20, 1899) notes that in the Prince Alfred and Sydney Hospitals, during the last six years, there have been 347 cases of appendicitis, with fifty-seven deaths—a mortality of 16.1 per cent.

The appendix was removed in the interval between the attacks fifty-nine times, with six deaths; thirty-five cases of abscesses gave eight deaths; forty-five cases of general septic peritonitis gave forty-three deaths. In twenty-nine of these cases the abdomen was opened, the appendix removed, and the peritoneal cavity flushed out and drained, but only two recovered.

TREATMENT OF HYPERTROPHIED PROSTATE BY VASECTOMY.

JACKSON (*Edinburgh Medical Journal*, February, 1900) has performed vasectomy three times, and each operation was followed by the gratifying gain for which it was done. Retention soon ceased to require the catheter. No testicular atrophy was noted. The operation was not followed by any degree of harm. It has seldom failed to relieve the patient, though not always to the same extent. It should be limited to the much more numerous class of cases in which the hypertrophy is due to a chronic state of blood engorgement, and not, of course, when it is due to a bulky middle lobe, to adenoma or carcinoma of the gland. It diminishes vesical irritability, causes atrophy of the prostate, and is simple and easy, requiring only local anesthesia.

TRAUMATIC KYPHOSIS—"SPONDYLITIS TRAUMATICA."

KÜMMELL (*Edinburgh Medical Journal*, February, 1900; quoted from *Centralblatt für Chirurgie*) was the first to draw attention to a characteristic deformity of the vertebral column which developed some considerable time after an injury to the spine. The cause is usually some heavy object falling on the head, neck, or back, or sudden overextension of the spine. At the same time the injury is not one which would generally be regarded as severe enough to cause fracture. The individual is confined to bed for one or more weeks complaining of tenderness over the spine, and it may be also of cord symptoms; when these disappear he is able to get up and return to his work. After a variable interval—it may be so long afterwards that he has almost forgotten the original injury—there develops a kyphosis or angular curvature, with or without pain and other symptoms.

Schulz, of Hamburg, read a paper on the subject at the recent Congress of German Naturalists and Doctors at Munich, in which he reviewed the various theories which had been propounded to explain the origin of the kyphosis. The original view maintained by Kümmell was that, although some of the cases were really examples of incomplete fracture of the spine, others were the result of a rarefying inflammatory process in the bodies of the vertebræ. Mikulicz suggested a trophoneurosis, the result of injury to the intervertebral ganglia and nerve roots. Others regarded the condition as allied to osteomalacia. Schulz expressed what appears to be the more reasonable view, that the essential cause of the kyphosis is a compression or other incomplete fracture of the spine, in which the callus formed is not only deficient in stability, but is subjected to strain and pressure before it is matured. In this he was supported by Oberst, Kümmell, and Schede.

FRACTURES OF THE HYOID BONE AND LARYNGEAL CARTILAGES.

PLATT (*Edinburgh Medical Journal*, February, 1900) performed tracheotomy upon a man fifty-eight years old because of difficulty in respiration, due to an injury of the neck, inflicted by the wheel of a cab. This patient

died three days later of bronchopneumonia, and the hyoid bone was found incompletely fractured at the junction of the body with the right great cornu; the thyroid cartilage showed an extensive vertical fracture. The submucous tissue of the larynx was markedly extravasated.

Fracture of the hyoid bone has proved fatal in nearly fifty per cent of the recorded cases; while fracture of the laryngeal cartilages shows a mortality of from seventy to eighty per cent. Fracture of the cricoid cartilage, according to statistics, whether alone or associated with a similar lesion in the hyoid bone or in one of the other cartilages, has always been fatal. It is probable, however, that the prognosis is not so grave as these figures would indicate, since when trifling they may pass unrecognized during life. Lane found in one hundred bodies examined in the dissecting-room evidence of old fractures of the hyoid bone and laryngeal cartilages in nine instances, and in no case had death resulted in any way from the injury. The point of chief practical interest in this study is the necessity of performing tracheotomy at once in those cases in which there is a fracture of the larynx. The onset of dyspnea may be sudden, and if the operation be performed early there is every reason to believe that a much larger proportion of recoveries would be recorded.

THE RADIOGRAPHIC STUDY OF THE REDUCTION OF FRACTURE.

TUFFIER (*Revue de Chirurgie*, No. 1, 1900) has made a radiographic study of forty-five cases of fracture, the fluoroscope being used before and after the application of a retention apparatus. He notes as a result that irreducible fractures are very frequent, and that in so far as functional troubles are concerned a perfect reduction is of minor importance in fractures of the diaphysis, and of major importance when the injury involves the articulation. As a matter of fact, fractures of the shafts of the humerus and femur are rarely reduced perfectly. In this regard palpation is most deceptive.

INTESTINAL INTUSSUSCEPTION.

ERDMANN (*Annals of Surgery*, February, 1900) has had an extraordinary personal experience with this affection, having seen fourteen cases within a few years. He holds, on the basis of this experience, that the disease is much more common than is generally believed, stating that in fully thirty per cent of all cases of acute obstruction intussusception is the cause. As to treatment, the use of air and water pressure is considered justifiable in all cases of less than twenty-four hours' duration; indeed, water pressure should be tried before operative interference is undertaken. The reservoir should be suspended about three to five feet above the child, and the latter should be held with the head hanging down, massage of the tumor, if one can be found, being practiced while the water is entering the bowel.

Out of nine cases, seven were operated upon, with three recoveries.

LENGTHENING OF TENDONS IN PARALYSIS.

PAGE (*The Lancet*, Jan. 13, 1900) reports a case of ischemic paralysis which he treated with benefit to the patient by lengthening of tendons. The boy had fallen and sustained a transverse fracture of the lower end of the humerus. The arm was put up in the flexed position with anterior and posterior splints on the forearm. A few days later, when the splints were removed, there was total loss of power of the fingers and wrist. Immediately below the fold of the elbow the pressure of the end of the splint had caused a superficial slough, which became detached in the course of four weeks and left an open wound which healed by granulation. But in spite of manipulation there was an increase in tendency toward contraction of the fingers, and the wrist also was becoming more and more flexed. Even under an anesthetic any attempt to straighten the fingers and hand was fruitless. In three months the fingers were flexed into the palm, though the joints were not affected. Strong flexion of the wrist had but small influence over the extensibility of the fingers. Anesthesia was partial only, involving the ulnar distribution in the hand, and there was some suspicion of wasting of the first dorsal interosseus. The flexor muscles felt peculiarly unyielding to pressure and decidedly firmer than natural. There were no other signs of paralysis of the median, ulnar, or musculospiral nerves.

This case exactly resembles two others which were seen by the author. The flexor tendons were exposed by raising a rectangular flap, and were in turn split longitudinally, severed to right and left at the opposite ends of each incision, extended, and sutured with

the finest silk in the usual way. After two weeks passive motion was practiced, and was supplemented by massage and electricity. The improvement was extremely slow and for months was scarcely noticeable; but in about nine months from the time of operation all tenderness had gone, the forearm could be completely extended, the wrist and hand voluntarily could be put in the extended position, flexion of the fingers was easy, and the child could make a fist. The forefinger only was at fault, the flexor profundus alone acting on it. As to the causes which induced this form of paralysis, there is a consensus of opinion that in some way or other it is due to prolonged pressure and fixation of the limb in splints.

EMPYEMA IN CHILDREN.

BOVAIRD (*Medical News*, Dec. 23, 1899) thus summarizes a study of empyema in children:

1. Empyema is not uncommon in the first two years of life, and even in the early months. Of the sixty-nine fatal cases on the records of the New York Foundling Hospital, eleven occurred in children under six months of age, forty occurred in children between six months and a year, and eighteen occurred in children between one and two years. The youngest patient was two months and nineteen days old.

2. The mortality during this period is very high.

3. Empyema in infants is very frequently mistaken for pneumonia.

4. The rational signs are the same as those of pneumonia in children.

5. The physical signs cannot be relied upon for diagnosis.

6. Exploration is called for in every case in which, with the rational signs of pulmonary disease, there is found marked dulness or flatness over any part of the lung, especially if accompanied by diminution or absence of voice and breathing or displacement of the heart.

7. Exploration should be made with a large needle, and repeated if necessary. None of the cases in the Foundling Hospital has ever shown harm from the use of the needle; many have been missed by reason of failure to use it.

8. Practically all pleural effusions in infancy are either purulent from the beginning or soon become so.

9. When pus is found, drainage is called for. Incision in an intercostal space, with the insertion of drainage-tubes, answers this end thoroughly.

SUPPURATIVE PANCREATITIS CURED BY LAPAROTOMY.

GUINARD (*Revue de Chirurgie*, No. 1, 1900) found in his hospital service a woman twenty-two years old, suffering from fever and violent pains in the epigastric region. She was shocked, and the abdomen was tender and slightly tympanitic. The patient was watched for several days, during which period the diagnosis fluctuated from perforating gastric ulcer to appendicitis, and finally to hematocele. The patient suddenly becoming much worse, an immediate incision was made in the epigastric region. The lower border of the liver was adherent to the anterior surface of the stomach. On freeing these adhesions and tearing through the more inflammatory material, a large sac, filled with brownish pus, was found in which were floating necrotic particles of tissue. This cavity was drained, and the patient recovered with a fistula, from which there flowed a small quantity of pancreatic fluid.

TREATMENT OF TETANUS BY INJECTION OF BRAIN EMULSION.

SCHRAMM (*Centralblatt für Chirurgie*, No. 1, 1900) had brought to him a girl, nine years old, who five days after a wound developed symptoms of tetanus, which became violent in three more days. An emulsion of guinea-pig's brain was made in a sterile salt solution. This was filtered and ten grammes of the filtration was injected subcutaneously. The treatment was followed by almost immediate improvement. It was repeated once four days later.

A NEW METHOD OF DRAINAGE IN THE TREATMENT OF DIFFUSE PERITONITIS.

BODE (*Centralblatt für Chirurgie*, Jan. 13, 1900) thus describes the method of treatment which he has found successful in cases of diffuse peritonitis. The abdominal opening is a large one, made with the pelvis of the patient elevated. The abdominal cavity is then thoroughly washed out with a stream of warm normal saline solution. Evisceration is then accomplished, and the various loops of the gut are wrapped in compresses,

wrung out of hot saline solution. As a result of this the patient gains strength. Perforations in the gut are thus easily found and closed. The now comparatively empty abdominal cavity is again flushed out with salt solution, eight to ten gallons being used, particular attention being paid to the upper surface of the liver, the region of the spleen, and also to the pelvic cavity. The fluid is entirely dried out by means of gauze compresses, and the eviscerated intestine, having been again thoroughly cleansed, is returned. A loop of the small intestine, lying about the middle of the abdominal cavity, is then seized and drawn out. At a point where there are no vessels, and near the root of the mesentery, an incision is made, and through this a long thick fenestrated drainage-tube is passed, which on dropping the loop back into the bowel forms a loop, draining the cavity on each side of the spinal column. Lateral incisions are made in the abdominal wall to the right and to the left, just above the colon, and through these the ends of the drainage-tube are passed. In addition to this tube, which runs transversely through the abdominal cavity, three others are passed, one from each lateral opening and one from the median abdominal incision to the deepest portion of the pelvis. If necessary, others are placed in the regions of the liver, stomach, or spleen; the laparotomy wound being then closed by through-and-through suture. The air which has been left in the peritoneal cavity is removed by renewed irrigation of salt solution. The patient is put to bed with just the head elevated. A salt solution is passed through the transverse tube to the extent of two or three pints thrice daily. Occasionally continuous irrigation through the tubes is employed.

THE RADICAL CURE OF EPITHELIAL CANCER WITH ARSENIC.

TRUNECEK (*Klinisch-therapeutische Wochenschrift*, No. 2, 1900) warmly commends arsenic as the medicament of choice in the treatment of epithelial cancer, when the latter is still strictly local and has not involved the neighboring lymphatic glands, and when it is accessible from without and the arsenic can be so applied that it is not absorbed. This treatment is advised for cancers of the breast in their early stages. When the drug is applied to non-cancerous regions or areas, it excites no reaction, or at most a very trifling one. The medicament works most rapidly upon ulcerating lesions and on cancers of the embryonal type. Cancers of moderate dimensions are completely healed in three or four weeks. For the purpose of lessening the pain of the application, orthoform is mixed with the arsenic, the following prescription being used:

> Arsenous acid and orthoform, each 1 part;
> Absolute alcohol and distilled water, each from 40 to 75 parts.

This solution is painted over the cancerous surface and forms a black scab, which steadily grows under daily repeated applications. This scab is not formed in any other kind of lesion. The author holds that the cancerous cells are first deprived of water by the alcohol, and that then their protoplasm is coagulated by the arsenic. Between the diseased area and the healthy tissue there is formed a line of ulcerations which suppurate until finally the entire epithelial infiltration is exfoliated.

THE TREATMENT OF DELAYED UNION IN FRACTURES BY THYROIDIN.

POTHERAT (*Revue de Chirurgie*, Jan. 10, 1900) reports two cases of fracture, in which he believes that union was materially aided by the administration of thyroidin. The first case was one of comminuted fracture of the leg. The deformity was reduced in chloroform, and a plaster bandage was employed after the fifteenth day. At the end of twelve weeks there was no consolidation, although phosphate of calcium had been given in large doses, and stimulating, indeed irritating, friction had been practiced. Thyroidin was then given in doses of ten centigrammes six times a day. In two weeks consolidation was perfect.

The second case had a broken rib, which in seven weeks presented no signs of union. Under ten days of thyroidin, subcutaneously applied, it entirely disappeared. On the eleventh day cerebral symptoms developed which he attributed to drink. None the less he stopped the thyroidin.

ANTISTREPTOCOCCIC SERUM.

DENYS (*Centralblatt für Chirurgie*, No. 3, 1900) after an experimental research upon animals, conducted with streptococci of apparently one species, which were derived from a glandular abscess, employed his antistreptococcic serum in cases of human infection; in two instances of poisoning, once from cadaver; in ninety-nine instances of

pronounced puerperal fever; in nineteen cases of infection following operations; and in a large number of cases of erysipelas. The results were most satisfactory. Of the ninety-nine cases of puerperal fever, two-thirds were saved. The cadaveric poisoning was apparently stopped at once.

As to the use of the medicament, from 250 to 300 grammes of the serum is injected within twenty-four hours into the subcutaneous tissue, and as near as possible to the seat of the poisoning. The most important point in the treatment consists in administering the serum daily. It must be prepared fresh, lasting only from ten to fourteen days.

SURGICAL INTERVENTION IN CERTAIN FORMS OF MEDICAL NEPHRITIS.

POUSSON (*Journal of Cutaneous and Genito-Urinary Diseases;* quoted from *Annales d. Mal. d. Organes Génito-urin.*) has attempted to apply surgical measures in certain nephrites, hitherto looked upon as medical cases, which threaten the life of the patient. He was able in the case of a woman suffering from a nephritis with profuse hematuria and alarming symptoms of uremia to check the disease by a nephrotomy. The patient, before operation, had diminished flow of urine, a small percentage of urea, and a large proportion of albumin. After the incision into the kidney the secretion of urine was reestablished, the albumin diminished, the urea increased in amount, and the uremia disappeared. While a fistula remained, the improvement was maintained, but after closure the symptoms returned, though with less violence. He further presented results in twenty-four instances of intervention in nephritis, complicated by grave symptoms. In nine cases of nephritis with hematuria, there were seven nephrectomies with two deaths and five recoveries, one nephrectomy with recovery, one simple exploration with recovery. In four cases with subacute infectious nephritis, these were submitted to nephrectomy, and all recovered. In eight cases of acute infectious nephritis, there were three nephrectomies with recovery, and five nephrotomies with two deaths and three recoveries. As to the therapeutic results, in the first set the hematuria disappeared at the same time the urinary secretion and elimination of urea were reestablished. The pain abated in the nephralgias. The albumin disappeared in the cases of subacute nephritis, and the fever and other symptoms in the severe infectious cases also disappeared.

The older objections to operative interference were that the lesions were likely to be bilateral; also the difficulty of determining the affected side when unilateral. In the cases cited the disease was unilateral, and the new methods of diagnosis with cystoscope and catheterization, together with the array of cases, certainly answers these objections. Further, the mode of action of the nephrotomy is explained by the suppression of the intrarenal tension. The happy results which ablation of the affected kidney may have upon the amelioration of the condition of its congener in nephrectomy is explained by the cessation of the reno-renal reflex; nephrectomy here playing a rôle analogous to the enucleation of one eye in sympathetic ophthalmia.

THE TREATMENT OF PSORIASIS.

S. C. MARTIN (*American Journal of Dermatology and Genito-Urinary Diseases*, November, 1899) advises as the best internal remedy in psoriasis, arsenic, echtol, and potassium iodide. When the disease assumes the diffuse form it is best treated externally by Robinson's soap method, which is applied as follows: The soap is to be thoroughly rubbed into the skin and allowed to remain. The rubbing is to be repeated twice a day for four or six days, then for three or four days once a day, and then nothing is applied for four days, when a bath is to be ordered. The bath is taken only after the epidermis has begun to loosen itself; if taken too soon retention and shrinkage will be so great as to interfere with the movements of the body.

Under this treatment the redness and infiltration rapidly disappear, and involution follows.

In some cases, where the eruption is not very extensive, but the infiltration considerable, the application of echtol is effected in the following manner: Saturate a thin cotton compress and apply to the infiltrated part. It should be applied constantly until the infiltration subsides. The scales should be removed before each application of the echtol with baths and soap. When the eruption is limited and suitably located, chrysarobin may be used, in the strength of twenty or thirty grains to the ounce of vaselin; or pyrogallic acid may be tried as a substitute, in the proportion of one to ten of vaselin. At the

same time arsenic in the form of Fowler's solution should be given in five-drop doses three times a day, after meals; or, if this fails, try large doses of iodide of potassium, from a scruple to a drachm, three times a day. Meat should be sparingly used, or, better, entirely prohibited. Alcoholic stimulants should be strictly interdicted. Mixed forms of this disease or complications require special notice. Plethoric patients will need saline purgatives and alkaline diuretics. Anemic cases require iron tonics and upbuilders. Of course, the good sense of the physician will suggest many aids not here mentioned; but what the writer would particularly emphasize is the necessity of constant watchfulness and perseverance on the part of the physician and patient, if permanent success is desired.

NEPHRORRHAPHY.

PREVOST (*Montreal Medical Journal*, January, 1900) thus describes Edebohls's method of performing nephrorrhaphy: The patient lies flat on her stomach, the legs flexed, and the feet, heels upward, held by the stirrups of the operating table. The abdomen rests on a cylindrical rubber air-cushion which Edebohls has devised especially for this kind of operation. It is about eighteen inches long and eight inches in diameter when inflated. An incision as long as possible is carried midway between the vertebral column and the lateral line of the body, from the border of the twelfth rib to the ilium. The external edge of the erector spinæ may be used as a landmark. The knife progressing divides a few fibers of the latissimus dorsi, cuts a fascia, and soon falls on the quadratus lumborum, which is denuded of its aponeurosis all along its internal border. The fatty capsule then is seen, and the kidney may be felt already at the bottom of the wound. Between two forceps the adipose capsule is incised, and the fat at once protrudes through the incision. The fibrous lamina is incised along the whole length of the convexity of the kidney, after which it is drawn out of the wound as far as it will go, and the redundancy of the fat sac is cut off on either side, taking care not to open the peritoneum at the lower pole of the kidney. If the kidney is very movable it is hooked up with the fingers and brought entirely out of the abdomen. Should any difficulty be experienced, then the ingenious action of the cushion is brought into play. In pulling downwards on the legs of the patient, the cushion quits the inferior part of the abdomen, where it was placed at the beginning of the operation, and rolls up toward the diaphragm, and by its pressure crowds up the viscera and causes the kidney to almost pop out of the abdominal incision.

A small puncture is then made in the capsula propria on the convexity of the organ, in the median line near the lower pole. Through this opening the capsula propria is divided downward and upward, upon the director. Catching the edge of the incised capsule with a thumb-forceps, the kidney is denuded with the handle of the scalpel on either side of the incision until about one inch of the kidney substance has been exposed all along the incision. The stripped-off capsula propria is not removed, but is doubled backward upon the still adherent portion like the lapel of a coat. At the time of the operation there is sometimes quite free bleeding, but it is of little consequence. A small curved needle, threaded with fine catgut, is thrust, beginning at the external side, through the layers of the doubled capsula propria, passes across the substance of the kidney, and comes out through the double layers of the capsule on the internal side. Three such sutures are used, one inch apart —one in the middle, one above, and one below. The kidney is then allowed to fall back in the abdomen, this being done by rolling back the cushion to its former place. Then one end of the suture is armed with a needle which carries the thread through the substance of the quadratus lumborum, and is secured with a forceps. The same needle is threaded with the other end of the suture and thrust through the muscles on the external side and a forceps again applied. The same thing is done for the three sutures. The edges of the muscles are approximated over the kidney with a continuous suture, and then only the three former sutures are tied over the united muscles. But in tying these deep sutures care must be exercised not to draw them too tightly, as they readily cut the friable kidney substance. The skin is united by a subcuticular suture and the dressing applied.

SUDDEN DEATH IN TYPHOID FEVER.

REMLINGER (*Archives de Médecine et de Pharmacie Militaires*, No. 1, 1900) in an analysis of the causes of death in typhoid fever, as based upon the autopsies of 315

cases, found that there were thirty-eight which died suddenly: some because of sudden failure of the degenerated heart muscle, some because of pronounced involvement of the kidneys, some for no adequate reason in so far as post-mortem examination and clinical records were concerned.

Death, under these circumstances, is attributable to a cardiac inhibition from reflex influences.

OPERATIONS FOR TYPHOID PERFORATION.

TAYLOR (*Annals of Gynecology and Pediatry*, January, 1900) reports five cases of operation for typhoid perforation. The first was operated upon after sharp abdominal pains, rigors, and vomiting, suggesting perforation. Death occurred in six or eight hours. The second case was operated on the fourth day after the accident; death ensued in eight or ten hours. The third patient was operated on twelve hours from the time symptoms suggested perforation, and recovered. The fourth patient was operated on four hours from the onset of symptoms, and died in about nine hours. The fifth patient was operated on twenty-four hours from the onset of symptoms, and practically died on the table. In at least one of these cases the early symptoms of perforation were extremely obscure. The author states that less than two hundred in all have been operated on, with still a very heavy mortality; but that nothing short of a moribund condition should warrant us in abandoning the case as hopeless. The key to success is an early operation.

THE DETECTION OF CALCULI IN THE GALL-BLADDER.

BECK (*New York Medical Journal*, Jan. 20, 1900) has been experimenting for some years with the purpose of determining whether or not the skiagraph can be made to show the presence of calculi in the liver and gall-bladder. In only two of nineteen patients, in whom biliary calculi were ascertained by subsequent cholecystotomy to have been present, was he able to obtain slight shades on the plate, and these were so indistinct that he should not have relied upon them as a diagnostic means. After many disappointments, however, he finally succeeded in getting a perfectly clear picture of a stone, by employing four different photographic plates at the same time. The upper plate, situated directly below the region of the gall-bladder, showed well the outlines of the liver, while in the fourth and remotest it appeared only faintly, but the calculi were clearly represented. By further experimentation he found that the longer the time of exposure the clearer the liver and the obscurer the calculi appeared. He found that one exposure is not sufficient to determine the length of time required by each individual tube for the representation of biliary calculi; therefore a test should be made: First, by making a short as well as a long exposure in a case of suspected cholelithiasis. The most powerful focus tubes obtainable should invariably be chosen for that purpose. The second point, and one which seems to be of great importance, is that the patient should lie on his abdomen with a pillow underneath his symphysis as well as underneath his clavicles. Thus the calculi are brought nearer to the photographic plate. The approximation is still increased by turning the body slightly to the right and raising the left side. A third most important point is that the rays should not penetrate the abdomen in a vertical direction, but from the side, so that the thick and less transparent tissue of the liver is not permeated in its whole diameter. The direction of the rays should be such that they form an angle of about forty-five degrees with the plate.

Calculi consisting of pure cholesterin give but an indistinct shade, while those containing quantities of calcium are more appreciable.

LESIONS OF THE LATERAL SINUS IN INJURIES OF THE HEAD.

GANGOLPHE and PIENY (*Centralblatt für Chirurgie*, No. 2, 1900; quoted from *Revue de Chirurgie*), as a result of an experience in one case and a study of the literature of the subject, state that the lesions of the lateral sinus are due either to a fracture of the bone or to the entrance of a foreign body; and that the blood may be effused between the dura and the bone, or into the arachnoid, in case the dura is densely adherent. Thus it may happen that the diagnosis between this injury and a true brain apoplexy may be extremely difficult. When brain symptoms arise, after a severe injury of the skull in the region of the sinus, an exploratory trephining should be practiced, as was done successfully in a case of Luis, who checked the hemorrhage by tampons and thus saved his patient.

Reviews.

THE TREATMENT OF DISEASES OF THE NERVOUS SYSTEM. A Manual for Practitioners. By Joseph Collins, M.D., Professor of Nervous and Mental Diseases in the New York Post-Graduate School, and Physician to the City Hospital. Six Hundred Pages, Illustrated by Twenty-three Engravings.
New York: William Wood & Co., 1900.

The title of this large book is modestly misleading. It is really a complete manual of those nervous diseases which are at all amenable to treatment, and which therefore are of the greatest interest to the general practitioner, for whose special benefit the work claims to have been written. That it is something more than a book on treatment is evidenced by the fact that each disease is briefly but clearly outlined in all its phases; in some instances even in a masterly manner. There is probably no picture of hysteria more graphically and faithfully drawn in the English language than that which graces the opening of the chapter on this disease. In some instances, too, the treatment occupies much less space than the symptomatology and etiology of the disease. Paralysis agitans, for instance, occupies ten pages, only three of which are devoted to treatment. Of the five pages devoted to multiple sclerosis only two are on treatment.

The brief space at the disposal of the modern reviewer of medical books narrows him down to giving mere glimpses of the author's style and matter. The former, though lacking polish, is always virile and at times forceful; the latter is practical, instructive, and comprehensive in most instances.

The author's tendency to rhetorical display is to be regretted, especially when it is uncalled for and can answer no practical purpose. For instance, in his "Estimate of the Value of Hydrotherapy" he rushes with an intensity worthy of a better cause upon the "intemperate advocates of hydriatics," administering a most terrific scourging to these "hydratists, physicians, and lay people," who, according to his belief, have brought hydrotherapy into discredit. Somewhat astounded by this indiscriminate condemnation, we have sought in the recent literature of this subject for the medical offenders among this motley crew of water-cure quacks and doctors. We find that the only American physicians who have written more or less warmly on hydrotherapy are Kellogg and Riley of Battle Creek, Baruch, Peterson, Draper, Ransom, Putnam, and Jacobi of New York, J. J. Putnam of Harvard University, and G. W. Foster of Washington, in chronic diseases; and that in acute diseases (typhoid fever chiefly) Tyson, Peabody, Delafield, Gilman, Thompson, Northrup, and Osler have similarly offended. In Germany the author's anathema would strike Winternitz, Erb, Krafft-Ebing, Kussmaul, and Leyden—indeed, every prominent consultant. If any of these writers have, as charged by the author, exhibited a "fanatic intolerance of other methods, especially physical measures, which well balanced therapeutists know are of as much if not greater value," we have failed to discover this intolerance. Even the water-cure quacks apply these physical measures constantly.

It would not be fair, however, to estimate the author's real position with regard to hydrotherapy by the iridescent rhetoric of this chapter. When he comes to the practical application of water in the only nervous diseases which are at all amenable to curative treatment, the reader will find him quite an "intemperate" enthusiast on hydrotherapy. On page 430 we read: "Cold water is the most potent agency to stimulate the circulation and to facilitate metabolic changes that are necessary for the preservation of nutrition. It has otherwise a powerful effect as a sedative to the sensory nerves of the skin." And in discussing the treatment of neurasthenia the author writes (p. 412): "It owes its good effect to the powerful appeal that it makes alike to the body and the mind. It aids constructive metamorphosis by stimulating the peripheral and deep circulation of fluids; it is an important agency to excite and to quiet the peripheral nerves and their central peripheral contributions; its use almost always gives at least a temporary feeling of well-being caused by reaction, and this makes an impression upon the patient's mind, helping to restore the lost confidence and to overcome the mental depression which plays such a leading part in the disease. In these ways and others it overcomes the myasthenia, it promotes the appetite and facilitates digestion, it aids rest and sleep, and it tends to overcome numerous paresthesias which form such a conspicuous feature of the patient's complaint."

We have devoted so much space to this quotation because among the remedial agents advocated by the author in the curable diseases of the nervous system, water appears to be the one agent of which he writes with high appreciation and positive views. Indeed, we are surprised to find

the author himself conspicuous among those whom he condemns for "recommending water as if it were the only curative agency," as evidenced in discussing the physical remedies, which, judging from his above quoted dictum, are "of greater value than water." Here he stultifies himself by writing on page 414 that "the effect of electricity is psychical," on page 417 that "the influence of climate is not very great, and that massage is often overrated and appeals to the mind." On page 418 he informs us that "medicinal treatment is the least important." Few readers of the THERAPEUTIC GAZETTE, which has always striven to place therapeutics on a scientific basis, will accept the author's singular dictum that "the way drugs act remedially does not concern us here."

Just as we have shown in the case of hydrotherapy, the author seems to be floundering and unreliable when generalizing, but he happily "comes down to earth" when he attempts to apply his knowledge of drugs practically. Here is a sound therapeutic statement: "In order to secure the full and legitimate effect of drugs they must be given in adequate doses." His scathing rebuke of the abuse of bromides, too, stamps the author as a safe man to follow in the clinical estimate of drugs. He writes: "I know of no drug, with the exception of those which produce habits, that is so enormously outraged. It is necessary to witness only once the colossal mental and physical depravity which sometimes results from the ignorant administration of this drug for minor ailments, and sometimes even for epilepsy, fully to appreciate the truth of this statement."

On the subject of sanatoria the author's position is quite sound. Their advantages and disadvantages are discussed with a fairness and moderation which indicate a thorough acquaintance with the subject. He wisely concludes that "there is much to be said against them in neurasthenia."

Another excellent admonition in the book is against gynecological interference in hysteria and other nervous diseases. Much damage has been done by the indiscriminate removal of the uterine appendages when not diseased. We had thought the day had passed when such strong language was needed, but the author doubtless speaks from observation, for he writes feelingly. The separate diseases are carefully discussed; the perusal of these chapters will doubtless satisfy the seeker for information.

If we may be allowed to sum up the merits and shortcomings of this book, it would seem just to place among the former the chapters on etiology and prevention of diseases of the nervous system, and among the latter the barrenness of new or positive therapeutic measures, to which the reader has anticipated some real additions in this newest work on treatment. The mechanical execution of the work is in the usual excellent style of the publishers. S. B.

A SYSTEM OF MEDICINE. By Many Writers. Edited by Thomas Clifford Allbutt. Volume VIII. New York and London: The MacMillan Company, 1900.

This is the eighth, and we believe the final, volume of Professor Allbutt's most valuable System of Medicine, and it fully maintains the valuable characteristics of its predecessors. Its first contents consist of a continuation of the consideration of diseases of the nervous system. The opening chapters deal with craft palsies, facial spasms, paralysis agitans, and other irregular forms of nervous diseases. The article upon neurasthenia is by the editor, and that upon traumatic neurasthenia is by Prof. Victor Horsley. The succeeding chapters are devoted to mental diseases and are written by such well known alienists as Dr. Savage, Dr. Clouston, Dr. Mercier, Sir J. Batty Tuke, Dr. Milne Bramwell, and others. It is hardly necessary to state that chapters written by such eminent scholars on diseases of the mind are valuable. In the consideration of diseases of the skin we find the names of such well known writers as Dr. Colcott Fox, Dr. Stephen Mackenzie, and Dr. Pringle. The eruptions of syphilis are dealt with by Jonathan Hutchinson, Jr. This portion of the volume is exceedingly exhaustive—indeed, it is almost a separate system of skin diseases of itself. The volume closes with an appendix, in which Sir Patrick Manson reviews some of the recent advances in our studies of malarial fever, in order to bring up the text of the System to our present knowledge concerning this interesting disease; in other words, it is an adjunct to Dr. Osler's article in Volume II, which appeared many months ago.

We congratulate Professor Allbutt upon the completion of a difficult task, exceedingly well done. It is not an easy matter to get a large number of eminent men to contribute to any "system" at the present time, yet almost without exception the contributors who have been grouped together by Professor Allbutt are men of the highest professional eminence, and their personal opinions, over

and above their bibliographical references, are of the greatest practical value.

Professor Allbutt is also to be congratulated on the fact that notwithstanding there are many "systems of medicine," his work possesses individual characteristics which are quite as complimentary to his skill as editor as is the scholarly text of the volumes.

A RETROSPECT OF MEDICINE. A Half-yearly Journal. Edited by James Braithwaite, M.D. Lond., and E. F. Trevelyan, M.D., B.Sc. Volume 120; July to December, 1899.
Simpkin, Marshall, Hamilton, Kent & Company, Limited, Edinburgh, 1900.

Once more we are called upon to notice the issue of this valuable record of medical progress. Several years ago we published a review of it, in which we stated that we believed it to be one of the best small summaries of medical literature which is placed upon the market, and a continued experience with subsequent volumes has still further increased our confidence in its usefulness.

GYNECOLOGY. A Manual for Students and Practitioners. By Montgomery A. Crockett, M.D. Series Edited by Bern B. Gallaudet, M.D. Illustrated with One Hundred and Seven Engravings.
Philadelphia and New York: Lea Bros. & Co.

This book aims at presenting the essential features of the subject of gynecology in moderate compass. It is printed in large, clear type, well illustrated, and contains some 350 odd pages. It occupies a mid-position between a quiz compend and the standard text-book. By an ingenious arrangement of headings, a careful subdivision of the subject, and special skill in clear expression, the essential features of gynecology are well presented and with a surprising thoroughness. The book is likely to become extremely popular.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., and Frank Hugh Montgomery, M.D. Fifth and Revised Edition. Copiously Illustrated.
Philadelphia and New York: Lea Bros. & Company, 1900.

There is perhaps no book devoted to the study of dermatology that is so well known to the profession as Hyde on the Skin, and in announcing to our readers that a new edition has appeared it is hardly necessary for us to do more than to point out the fact that this new edition is new indeed, in that it has been carefully revised by its skilful author and his competent colaborer, Dr. Montgomery. It is pointed out in the publisher's note that the history of this work has been one of great appreciation and success. The first edition appeared in 1883, the second in 1888, the third in 1893, the fourth in 1897, and the present one passed out of the author's hands toward the close of 1899.

It is not often that a book devoted to a special subject proves so popular, and it is certainly an exceptional thing that it should increase in popularity with age; no better proof of its extremely practical character can be offered.

The present edition has been enriched by a large number of illustrations, and also by the introduction of a large number of prescriptions illustrating the manner in which various drugs which are recommended in the text can be given.

To those who are unacquainted with the volume we may say that they will find it by no means a small one, but rather an exhaustive treatise dealing with the diseases in question. To those who desire a first-rate text-book on dermatology we can cordially recommend it, feeling assured that they will find it a distinct aid to them in practice.

CHRISTIAN SCIENCE. A Plea for Children and Other Helpless Sick. By William A. Purrington.
New York: E. B. Treat & Company, 1900.

This small octavo of less than 200 pages is written by Mr. Purrington with the idea of showing the utter foolishness and sinfulness of those who in professing to follow the teachings of what has been called "Christian Science" deprive their fellow beings of those measures which might be properly used for their relief.

As Mr. Purrington says, on page 92 of his essay: "A sickly New England woman, twice widowed, once divorced, and so without the vestal sanctity usually claimed by those of her sex who aspire to lead religious thought, untraveled, unlearned, and uncultivated even in the use of her mother tongue, has been able to impose upon many persons at home and abroad, not only a flatulent and incoherent system of religion and metaphysics, which as religion and metaphysics would concern us little, but also a system of treating, or rather neglecting, the sick, and fattens the greedy coffers of herself and her disciples, who follow it as a business, while leading down to dusty death many credulous adults and defenseless children."

To those who are sufficiently interested in this ridiculous cult we can cordially recommend this book, as showing clearly its weakness and distressing ignorance.

HISTOLOGY AND PATHOLOGY. A Manual for Students and Practitioners. By John Benjamin Nichols, M.D., and Frank Palmer Vale, M.D.
Philadelphia and New York: Lea Bros. & Company, 1900.

The authors of this little manual of about 450 pages have endeavored, quite successfully, to present the medical student with a summary of histology and pathology.

The volume is one of the series known as Lea's Series of Pocket Text-books, and is printed in good type, on excellent paper, and furthermore, is very well illustrated, which is more than we can say for many of the smaller and cheaper text-books on histology and pathology which have been placed upon the market quite recently. We are familiar with all of the text-books belonging to this series, and this strikes us as being one of the best. We believe that it can be warmly recommended to the average medical student, since on the one hand it is not so condensed as to be of little practical value, and on the other hand it is sufficiently full to give him nearly all, if not all, the information that is required in the ordinary medical school.

THE NEURON THEORY AS RELATED TO BRAIN AND NERVE DISEASES. By David I. Wolfstein, M.D.
Providence: Snow & Farnham, 1899.

This essay deserved the Fiske Fund Prize, awarded to Dr. Wolfstein by the trustees of the Fiske Fund at the annual meeting of the Rhode Island Medical Society, held in Providence, June, 1898. It deals quite exhaustively with the subject which is described in its title, and presents a large number of microphotographs, taken from specimens prepared by the writer himself, according to the Golgi method. Naturally, as the essay was written in the latter part of 1897 or early in 1898, a number of the facts which have become known by research during the last two years cannot be found in this monograph, but on the other hand it is a clear and lucid description of the very important changes which have taken place in our ideas concerning the minute anatomy of the central and peripheral nervous systems.

THE IRRIGATION TREATMENT OF GONORRHEA. Its Local Complications and Sequelæ. By Ferd. C. Valentine, M.D.
New York: William Wood & Company.

This book has been written, the author states, to place before those physicians who may not be thoroughly familiar therewith the rationale and technique of irrigations in acute gonorrhea; the advantages of dilatations and irrigations in chronic gonorrhea; the dangers of uncured gonorrhea; and the means of locating the foci of the disease, especially after its external manifestations have subsided. It may be said that it admirably fulfils its object.

The book opens with Goldberg's summarization of the published reports of the method of irrigation, which shows that sixty per cent of acute gonorrheas were cured within ten days, and thirty per cent within fourteen days. The apparatus employed is minutely described, as are the methods of performing anterior and posterior irrigations. Indeed, it may be said that even a non-professional man on reading this section of the book would be able to conduct the irrigations without a mistake.

A rapid and ingenious method and dressing of circumcision is described in a characteristic and clear manner.

The section on chronic gonorrhea is particularly instructive, founded as it is on the author's very large experience. The local treatment is summarized as follows:

1. If the affection is superficial it will yield to irrigations. The method of administering these irrigations is fully described. Ordinarily one series, requiring eight days of such irrigations, will suffice to cure the case. Occasionally a repetition of this series of irrigations will be required.

2. If the urethritis causes structural changes of the mucosa, or involves the deeper tissues, or has invaded the ducts of the crypts, glands, and follicles of the channel, dilatations will be required for their own effect.

3. If the urethritis depends upon invasion of the crypts, glands, and follicles, these will have to be slit, curetted, or destroyed by electrolysis before their contents can be liberated. Similar treatment is required when diverticula or false passages complicate the case.

4. If neoplasms are the cause of the urethritis, they must be removed in accordance with modern surgical principles.

5. If the urethral adnexa are involved, they must be subject to the specific treatment which is described.

This book of Valentine is worthy of warm commendation. It should be studied by every practitioner who attempts to treat a case of gonorrhea (and this probably comprises the vast bulk of the profession), and even though the irrigation and instillation treatments often fail of their purpose—even at times favor the development of complications and sequelæ much more serious than

the original disease—they are such valuable adjuncts to modern treatment that their application and limitations should be clearly understood.

Correspondence.

LONDON LETTER.

By Raymond Crawfurd, M.A., M.D. Oxon., M.R.C.P. Lond.

Perhaps the most noteworthy incident in the medical life of London in the past month is the issue of the Commissioners' Report, by which London is at last to be possessed of a teaching university, and we hope one that may be worthy of its position as the metropolis of the empire and the largest city in the world. At present we have only regulations for the appointment of the senate, its working subcommittees, convocation, and the like, and the task of working out the salvation of the university will devolve upon the senate that is shortly to come into being. The future home of the university is to be in the Imperial Institute, which by reason of its remoteness from the center of London is far less satisfactory than the old home in Burlington House. To it are affiliated the various teaching institutions within the appointed radius, and among these King's College and University College are given priority of place. On the whole there should be no grumbling at the amount of representation conceded to the faculty of medicine; the neglect, and indeed the non-existence, of many other important faculties in the old university has given to medicine in the past a predominant place in its affairs that would not be recognized in any other university. The important task of endowing professorships, and the appointment to these offices, is left over to such time as the funds of the university may justify the expenditure—that is to say, until pious donors have recognized the claims of the university on their purse.

It is interesting to see how the Royal Army Medical Corps has stood the severe test to which it has been put in South Africa. For years, as is probably known, there has been a growing unwillingness to enter the service — a year or two since the War Office sought to appease the alleged grievances by granting militant rank. This has failed entirely to attract candidates; indeed, the vacant commissions are far more numerous than the number of applicants, so that the corps has become hopelessly undermanned. This was the condition in which the present war found us; and yet if there is one branch of the service that has escaped a growl, either at home or in the field, in the present ordeal, it is the Royal Army Medical Corps. To send out the necessary number of army surgeons it has been necessary to deplete the home establishment, and to supplement extensively with volunteer civilian surgeons. It seems that in face of these facts the government has but one of two courses: either to increase the number of applicants, by the very obvious expedient of improving the pay, or to maintain the existing system and rely on an assured levy of volunteers when occasion arises. The former is the more rational and businesslike course to adopt, but prejudice and economy will probably weigh down the scale to the side of the latter.

An instructive discussion on the balneological treatment of nervous diseases was opened at the last meeting of the British Balneological and Climatological Society. It is remarkable how little practical attention has been paid to the subject in this country. The complexity of modern therapeutics tends to blind us to the fact that man is subordinate to those primary laws of hygiene that dominate plant life and the life of the lower animals. A ray of sunshine, a breath of fresh air, a draught of pure water, are still the most potent tonics at our disposal, and have their most striking usefulness in functional disorders of the nervous system. Open-air treatment should have a far wider connotation than the treatment of phthisis; the régime of insane asylums and epileptic colonies, in which full advantage is taken of this method, affords strong confirmation of this. Abuse, however, is prevalent also on the side of excess; not every neurasthenic will derive benefit from cold-bath treatment, though many will, and not every neurasthenic is suited to touring and ocean voyages. The successful application of bath and climatic treatment depends on a careful discrimination of cases. Much of the influence of baths and of climate on such conditions as neurasthenia, insomnia, and neuralgic states is brought about by modification of the tension of the pulse. Bezley Thorne holds that in so far as they tend to reduce pulse tension they promote sleep, and *vice versa*. Dr. Kingscote holds that high altitudes tend to high tension, and are unsuitable to such hyperesthetic conditions as neuralgia, which

often immediately disappear on seeking a lower level; conversely anesthetic conditions such as the pains associated with muscular atrophy are often relieved by high altitude. Further, both baths and climate have a distinctly beneficial influence in so far as they assist the elimination of toxins; these substances unquestionably play a very important rôle in neuropathology—for example, in migraine, a condition which almost beyond question is associated with the presence of excess of uric acid in the circulation; so also in peripheral neuritis. Probably the chemical composition of the bath in these conditions is of secondary importance to its physical characters. The question of temperature is of first-rate importance; thus extremes of temperature should almost always be avoided, and the best results will generally be obtained from the indifferent bath at about the temperature of the blood. Toxemic states have such an immediate influence on arterial tension that in the nature of things one would expect to find their strongest expression in the nervous system.

Cinnamon has of late been raised to the rank of an important drug. In student days aqua cinnamomi was an innocuous vehicle with a mild stimulant action on gastric secretion, and that was the sum of it. Its virtues, however, have been long known in tropical countries as a powerful germicidal agent; on this basis it has recently been exploited as the very newest specific for influenza. Now we are told from Formosa that in dysentery and the whole gamut of tropical diarrheas cinnamon is without a peer, and effective in cases where the strongest astringents and sedatives have been tried and found wanting. We are in much the same dilemma with cinnamon as with ipecacuanha, for how comes it that agents that promote secretion in small doses, in large doses exert a strong controlling influence over intestinal flux? It must be that some other property comes into action, and that property would seem to be germicidal. Dr. Wilkinson, of Formosa, prescribes teaspoonful doses of the powdered cinnamon, mixed with a little milk to mold it into the shape of a bolus, and this is chewed night and morning. At the summer meeting of the British Medical Association at Portsmouth, Dr. Henderson recommended cinnamon in cases of sprue. Our troops in South Africa have suffered seriously from dysentery, and a writer in a daily paper suggests that a supply of cinnamon sticks should be sent out for their use.

Dr. Fothergill read some notes to the Manchester Medical Society on the treatment of the summer diarrhea of infants with salol and petroleum. In thirty-five cases he used salol alone. Two children died, six did not improve until other drugs were employed, while the remainder rapidly recovered under the influence of salol alone. In thirty-two cases an emulsion containing 33.3 per cent of petroleum was given. One child died, two recovered slowly when other drugs were employed, and the remainder made a complete and rapid recovery on petroleum alone. From the figures alone it is impossible to form any conclusions, so much depending on the duration and intensity of the diarrhea prior to treatment; but the figures would certainly compare unfavorably with the average figures of an out-patient children's department with the old-fashioned and time-honored drugs in common use.

The Pathological Society held an interesting discussion on the forms and significance of the proteids met with in the urine. The society was fortunate enough to induce Professor Halliburton, of King's College, London, to open the discussion. He attributed the non-appearance of albumin in healthy urine to the large size of the molecules, so that they are unable to pierce the renal epithelium. He was inclined to regard the appearance of serum globulin in large quantity in the urine as of serious import in prognosis, as the molecule of serum globulin is so much larger than that of serum albumin as to necessitate much greater damage of the renal epithelium to permit its escape. Pavy dissented from the clinical inference, relying by preference in forming a prognosis on the other constituents of the urine. The physical character of the molecule likewise explains why fibrinogen is not found, and caseinogen even when lactose is present. The sugar molecule, however, is so small that if sugar be present in the blood, it must inevitably find its way into the urine. Pavy was willing to admit the existence of functional albuminuria—that is to say, the presence of albumin in the urine without histological change in the kidney; the transudation of the albumin is then simply a question of increased pressure. Thus albuminuria may follow severe exercise or a cold bath, and albuminuria may be cyclic—that is to say, periodically present when the erect posture raises the pressure, and periodically absent when pressure falls during recumbency.

Mr. Alfred Cooper's experience enabled

him to speak *ex cathedra* on the treatment of primary and secondary syphilis. He pronounced against attempts to destroy the local sore by excision or cautery, himself employing locally either lotio nigra or equal parts of mercurial ointment and vaselin, and giving mercury by mouth or otherwise. He had a good word for tannate of mercury; it is quickly absorbed and eliminated, and less prone to produce stomatitis than other preparations of mercury; it is best given in pill in doses of one to two grains three times a day. He had also used intramuscular injections of sozoiodol of mercury (⅛ grain) once a week with considerable success. It was claimed that intravenous injections are the most rapid method of getting the patient under the influence of mercury, and for this method cyanide of mercury is by far the best form. Whatever form is used, the two years' rule should be enforced.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

The annual report on the attendance at the Faculty of Medicine of Paris has been published. There were inscribed at the Faculty for the year 1898–99, 4315 students, of whom 4112 were candidates for the diploma of "docteur en médecine," or of "officier de santé," an inferior qualification, now abolished except for a few students who began their studies under the previous law.

Of the students 3542 were French, and 570 foreigners. There were 3983 men and 129 women. The diplomas of "docteur en médecine" given were 671 in number, of "officier de santé" 13, of midwife 48, and of surgeon-dentist 68.

The statistics show that 180 students less than in 1897 were inscribed, but it must be remembered that this includes the names of 160 struck from the rolls for not having been present during the past five years.

Among the foreigners were 180 Russians, 79 Roumanians, 26 Germans, 25 Greeks, 24 from the West Indies, 21 Swiss, 12 Spanish-Americans. Most of the women were foreigners—100 out of 129, of whom 91 were Russian, 5 were Roumanian, 2 German, and 1 Swiss. The individual examinations were 9118, passed before thirty-four professors and thirty-six professeurs agrègés. The number of candidates refused was 1591, or 17.4 per cent, a rather high percentage.

Of the 671 diplomas given, 79 were bestowed on foreigners, and did not admit to practice in France. The provincial faculties of medicine gave 500 diplomas during the year. This makes a total of about 1100 medical men during the year, which is not too large, considering that the number in France is not great. In 1847 there were 17,559, in 1876 14,376, in 1896 15,017. In most departments the number of physicians has diminished from twenty to forty per cent. A sum total of 15,000 medical men for a population of 38,000,000 is after all not so bad, compared to what it is in Great Britain, where there are 35,500 medical men for 48,000,000 inhabitants.

Dr. Vaquez, physician of the hospitals, has recently described a new method of feeding typhoid patients during the pyretic period. Instead of suppressing all nourishment excepting milk, he recommends the use of meat jellies, of scraped meat, and of various preparations which will not have an injurious effect on the mucous membrane of the intestine. Dr. Vaquez has tried this regimen on a certain number of patients with good results. He thinks that the lack of food plays a certain rôle in the condition of the patient. The loss in albuminoids is very great in typhoid fever, and milk diet is really insufficient; as a consequence there is loss of flesh. A certain number of symptoms, such as delirium, passive congestion of lungs, smallness and frequency of the pulse, persistent dryness of the tongue, tendency to bed-sores, and trophic disturbances, are not seen in typhoid patients who are fed.

The great point is to feed the patient progressively and regularly. Hemorrhage and perforation of the intestines as intestinal complications are not rendered more frequent. Perforation may supervene in cases where the most stringent rules are kept. Besides, the use of milk is far from efficacious, as it produces a residuum which is quite considerable, and when diarrhea supervenes a very large quantity of effete matter is thrown off.

The regimen adopted by Vaquez is the following: A cup of milk every two hours, but at eight o'clock this cup of milk is replaced by a large cup of tea or *café au lait*, or a plate of soup made with *racahout*. At midday, milk soup with the yellow of an egg, or half a teaspoonful of somatose, or a Bordeaux glassful of meat jelly, or fresh grated meat. At six o'clock same meal, or instead of a milk soup, a bouillon with the

yellow of an egg. During the night a half-spoonful of somatose is given with some milk.

When the temperature begins to go down, one can replace the meat jelly by raw rasped meat.

Two or three days after the temperature has become normal custards, some light soup with cacao wheat, or a little rice, are given. All this must be strained through a cloth. Toward the seventh or eighth day of convalescence half-cooked eggs, biscuits, and well mashed and finely shredded fruit jam are given.

No complications have been noticed in all the cases under observation. There has been no hyperpyrexia, and convalescence has been short. The gastric symptoms presented nothing abnormal, the tongue was moist, and diarrhea was always moderate.

Creosote as a drug has been used in France much less frequently than formerly. Certain morbid symptoms taking place after the administration of this drug had thrown a certain amount of discredit on it, and different chemists accordingly tried to isolate bodies which would produce the same therapeutic result without the disadvantages. Amongst French authors we can cite Lorot, who has studied such compounds as carbonate, tannate, phosphate, phosphite, valerianate, and camphorate of creosote. Brissonet has also studied a combination formed by formic aldehyde and creosote, or creosoforme. This drug would seem to be what is needed, as it is not toxic and contains ninety-six per cent of creosote.

Carbonate of creosote, or creosotal, was the first discovered of these salts. It has no taste, no caustic action, does not cause any irritation of the digestive organs, and can be given up to twenty grammes. A half-spoonful of this product can be given night and morning in a cup of milk. Three spoonfuls a day may sometimes be given. Jacob gives three drops a day to children. This drug acts against the fever, the abundance and fetidity of the expectoration, and increases the strength. It is useful for children.

Tannate of creosote, or créosol, has been studied specially by Bolland, Blind, A. Robin, and Tournier. It is useful in tuberculous asthenia, and dries the bronchial tubes very readily. The usual dose is three grammes daily. This drug should not be used hypodermically.

Phosphate or tannophosphate of creosote, phosote or taphosote, are the most active forms of creosote known at present. Acute symptoms of intoxication do not appear, but sometimes after using daily doses of four grammes, insomnia, loss of flesh, weakness in the lower limbs, and paralysis may appear. The treatment should consist in giving it five days, then resting five days. Brissonet recommends the following preparation:

> Phosphate or tannophosphate, 25 grammes;
> Syrup of orange flowers, 70 grammes;
> Gum arabic, 10 grammes;
> Aq. dest., q. s. ad 125 Cc.
>
> Three teaspoonfuls a day.

The phosphate is the only one that can be used in injections. Lorot employs the phosphate pure with a tenth part of alcohol. Five cubic centimeters may be injected. This dose should not be repeated too often.

Phosphite of creosote, or phosphotal, is readily assimilated and eliminated. It can be given in doses of fifteen grammes every day, and is, according to Lorot, useful in torpid cases of phthisis. Hypodermically an oil solution 3:10 can be used. Enemas may be also useful. Grasset, of Montpellier, uses the following preparation:

> Wine of opium, 5 drops;
> Phosphotal, 1 to 3 grammes;
> Yolk of 1 egg;
> Olive oil, 30 grammes;
> Milk, 150 grammes.

An ordinary enema should always be given first.

Valerianate of creosote, or eosote, has not been much studied in France. It acts on the nervous system especially. Gravitz gives it in capsules containing 20 centigrammes. Three capsules are given daily. The number may be increased.

Camphorate of creosote, or creosocamphor, is a sedative for the nervous system. Neuralgia, tachycardia, dyspnea, are its best indications. The oil solution 1:5 is the best, and can be given in milk.

A combination of creosoforme and tannin, or tanno-creosoforme, is the best drug in tuberculous enteritis. Two to eight capsules containing 0.50 centigramme are to be given daily after meals.

Lorot has written about benzoate, cacodylate, and vanadate of creosote. These combinations have not yet been studied.

There has been quite a scare in Paris on account of a very slight epidemic of smallpox which broke out about the 15th of February. It appears to have been an importation from Marseilles. One case occurred at the Pitié, and two other patients

caught it, as well as a male nurse, who had refused to be vaccinated. Smallpox has caused only four deaths during 1899, but during the first six weeks of this year there were twelve cases during the fourth week, fifteen during the fifth, and ten during the sixth. These official figures are certainly very reassuring; however, everybody in Paris is being vaccinated at present.

Orthoform is a drug which is being used in some cases for fissures of the breast. Bardet, a pharmacologist, recommends the following preparation, the formula of which he gave recently at the Society of Therapeutics:

Orthoform, 5 grammes;
Ether, q. s. to dissolve;
Almond oil, 20 grammes.

This preparation is applied to the nipple and causes slight pain for one or two minutes. The breast should be washed before the child is put to nurse. Dr. Maygrier, accoucheur of the hospitals, applies one or two drops of a solution in alcohol of ten- or fifteen-per-cent strength.

ROME LETTER.

By J. J. Eyre, M.D.

The Italian Society for the Study of Malaria.—In June, 1898, on the initiative of Professor Celli, the Director of the Institute of Hygiene, Rome, and with the cooperation of Signors Fortunato and Franchetti, it was proposed to establish in the Eternal City a Society for the Study of Malaria. This proposal met with sufficient support to enable the society to hold its first ordinary meeting at the Institute of Hygiene on December 3, 1898. At this meeting the statute of the society was approved, and after the first annual report was read Signor Fortunato was elected president, and Prince S. Borghese, Signor Franchetti, and Professors Marchiafava and Celli were elected councilors.

In the annual report the results of the researches completed by some of the working members of the society in relation to how malarial fevers were taken and how man can be protected from them were briefly referred to. During the whole of last year the following members of the society, Grassi, Bignami, Bastianelli, and Dionisi on the one hand, and Celli, Casagrandi, Santori, Del Pino, and Lo Monaco on the other, studied these questions, with the result that to-day a doctrine in the fields of the etiology, epidemiology, and prophylaxis of malaria can be said to be firmly constituted.

The second annual meeting of the society was held at the Institute of Hygiene on February 8, Signor Franchetti occupying the chair. He, in opening the proceedings, said that with the modest sum of about 13,000 francs the society, thanks to the good-will of its studious members, had obtained brilliant results, which eloquently demonstrated how much private initiative and individual activity could accomplish. Having thanked the Italian railway companies for their contributions to the society and the facilities accorded to its members, he concluded by stating that the work of the society was extending not only in the Agro Romano, but also in other regions of the country affected by malaria, where in the coming season the results of the new theories for protecting man from malaria will be applied.

Professor Celli then read his second annual report, in which he stated that from the first annual report it resulted that Grassi, with the geographical distribution of the various species of mosquitoes in Italy, had observed that the genus Anopheles especially was the spreader (*spia*) of malaria. Bignami, for the malaria of man, had already maintained that the most probable theory was that of the inoculation of the disease by the agency of mosquitoes, and Dionisi had maintained the same for malaria of birds. Celli had excluded water and soil as sources or vehicles of this infection.

In their turn Bastianelli and Bignami had studied the structure of the malarial parasites, and in particular of the forms destined to the reproduction of the species, and Celli initiated the first methodical study on immunity against malarial infection.

Grassi, Bastianelli, and Bignami had given the first direct proofs of the propagation of human malaria by the agency of mosquitoes, and of the cultivation of the respective parasites in the body of these insects analogously to what Ross had already demonstrated for malaria of birds.

During the past year these members of the society had found all the phases and the more important conditions of development of the diverse parasites of human malaria in the body of special Anopheles mosquitoes; and were thus able to follow and describe all the cycle of this development even better than Ross had previously done. They, besides, had excluded all hereditary transmission of the malarial infection from infected

mosquitoes to their offspring or to other young mosquitoes, and had undoubtedly demonstrated that only the various species of the genus Anopheles, as Ross had confirmed, and not the Culex, whatever Koch had said of them, or up till now, according to Grassi, any other bloodsucking insects, can be said to transmit malaria.

Grassi and Dionisi had also cleared up the systematic position of the malarial parasites, and the signification of the two phases of development—that is, of their asexual forms destined to multiplication in man or in malarial animals; and of the sexual—that is, destined to the reproduction of the species after fecundation in the mosquito's body.

Grassi and his school on the one hand, and Celli and Del Pino on the other, had studied from one season to the other of the fevers the life and habits of Anopheles in malarious places, while Ficalbi had added in this connection in his monograph other precious discoveries; and Celli and Casagrandi had studied the resistance of mosquitoes to natural physicochemical agents which tend to destroy them.

Moreover, Grassi and Celli, independently of one another, had controlled on the guidance of the new theories the laws of diffusion of malaria in the atmosphere, and the local conditions, such as the nature of the soil, water, air, and vegetation, that predispose to the development of the specific mosquitoes, and therefore to malaria. And in particular Celli had analyzed and studied under both points of view the rice-fields and salinas in malarious places.

Meanwhile, Celli at the farm of Cerveletta, on the Tivoli railway, and Del Pino and Dionisi at the farm of Maccarese, had studied the epidemiology of malaria in relation to the new theories.

And thus before Koch published his paper on the "Malaria of Grosseto," and subsequently more regularly and completely, the members of the society discovered the laws: how the original epidemic originates; how the consecutive monthly distribution of the various types of malarial fevers happens in the second half of the year; how these fevers are prolonged, especially with their recurrences in the first half of the year; and, in fine, how the epidemic year reopens, which ends in June with the recurrents, and recommences in July with the new infections propagated by the mosquitoes. Analogous observations were made at Ostia by Bastianelli and Bignami.

Celli and Dionisi also investigated the relations between the life of the workers in the Roman Campagna and the course of the epidemic of malaria.

In the S. Spirito Hospital, Rome, Bastianelli and Bignami, Gualdi and Martirano, Lo Monaco and Panichi, had observed the action of quinine on the sexual and asexual forms of the specific parasites. The results obtained showed the inefficacy of this remedy against the sexual forms, which are epidemically speaking the more dangerous, and consequently the impossibility of combating the malarial scourge solely with quinine.

Besides, Celli and Casagrandi had occupied themselves with the methods of destruction of mosquitoes both in their aquatic and aerial lives,* and they on the one hand, and Fermi on the other, tested and retested the substances that acted as culicifuges and therefore capable of protecting the skin from the bites, always troublesome, frequently pernicious, of mosquitoes.

On his own account Celli had continued his studies on the conditions of the organism capable of giving or producing an immunity against the malarial infection, demonstrating how by means of certain drugs (euchinin and methylene blue) one can reach an artificial immunity even against experimental estivo-autumnal malaria.

While Grassi in the summer had made an experiment of short duration on artificial protection against malaria by means of a network of iron wire placed in the doors and windows of the houses, which prevented the entrance of mosquitoes into the rooms, Celli before and after—that is, from June to November—along the Mediterranean and Adriatic railways, had demonstrated that during all the unhealthy time those who live and work in the most pestilential zones can be thus protected from the fevers. The control observations made in surrounding parts had confirmed this possibility; so that in the coming malarial season a similar prophylaxis will be made on an extensive scale according to the experience already gained.

In any case it has now been demonstrated without doubt that man who lives and works even in places of the most severe malaria can be artificially protected from it.

Finally, Dionisi, continuing his investigations on malaria of pipistrels (small bats), the nearest to that of man, had demonstrated

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*See THERAPEUTIC GAZETTE, Oct. 15, 1899, pages 649-61.

that fortunately it is not transmissible to human beings. Consequently it has been proved up till now that the circulation of the malarial contagion takes place only from man to man by the agency of special mosquitoes.

Of the most important of these results information has from time to time been given by the members of the society. The society itself has distributed bulletins, and it now presents the first volume of its Transactions with original memoirs beautifully illustrated. Under its auspices the following works have been published: Malaria According to the New Researches, by Celli, and a summary of this book, which was distributed to the medical officers of health of the communes most infected; and a monograph entitled The Recent Discoveries in Malaria Explained in a Popular Form, by Grassi.

Very soon Celli hopes to publish a second edition of his book, with English and German translations, and Grassi a complete work on his researches.

In this connection the present writer may perhaps mention that his translation of Celli's very able and philosophic book will be published early in April by Messrs. Longmans, Green & Co., of London and New York. It ought to be read and studied at least by all medical practitioners who have to deal with malarial fevers, inasmuch as it not only gives a description of the most recent discoveries made up to the end of last year in relation to the new theories, but it also contains the best account yet published on the etiology and prophylaxis of malaria.

SOME PRACTICAL POINTS ON ASEPTIC SURGERY IN COUNTRY PRACTICE.

To the Editors of the THERAPEUTIC GAZETTE.

SIRS: Surgeons operating in a hospital with all the modern aseptic appliances at hand cannot realize the difficulties a country surgeon has to surmount, if he would be *clean*. And yet we are compelled, whether we wish or not, to undertake operations of a more or less serious nature, or else allow some cases to die without the chance of recovery offered by operation.

We must recognize appendicitis, strangulated hernia, and such other conditions requiring immediate surgical interference, and be ready to do an aseptic operation, perchance in a log cabin, where a rusty tin basin and a barrel of rain-water offer the sole means of cleanliness. It is necessary, then, that we provide ourselves with proper means for effective sterilization, so that instruments and even the water can be sterilized before being taken to the patient's house. I do not think the importance of surgical cleanliness is as fully appreciated by the country physician as it should be, and it is my wish to give here a brief outline of my mode of preparation for an operation.

I have bought at an expenditure of $2.50 two white enamel-ware basins, two bowls, and two trays 8 x 14 inches—the trays for instruments, one small bowl for needles and ligatures, and a large bowl for bichloride solution. All the vessels that are to be used in the operation are steamed for one hour in a tin clothes boiler (which can be bought at any tin-shop for one dollar), fitted with a perforated tin rack about two inches from the bottom; after sterilization is completed the water is allowed to escape by a spigot fitted to the side of the boiler and as near the bottom as possible. A two-gallon bucket is packed with about two dozen towels, filled with water, and boiled; another two-gallon bucket is filled with water and boiled. Instruments, needles, and ligatures, unless the latter are otherwise prepared, are boiled in a bucket provided for that purpose.

These vessels are put into my buggy and taken to the patient's house, and are not opened until everything is made ready for the operation, at which time the boiler is uncovered, the basins and largest bowl, which have been purposely put on top, are taken out and filled with warm boiled water, and the operator and his assistants proceed to scrub with a sterile nail-brush, and with sterile water in a sterile basin, afterwards immersing the hands in the large bowl which has been filled with bichloride solution. The anesthetic is now commenced, and some one who is not to assist in the operation removes the covers from the buckets, and the operator and his assistants with *clean* hands proceed to arrange the instruments, ligatures, etc.

The field of operation, having been previously scrubbed, shaved, and covered with a bichloride pad, is now exposed and surrounded with the sterile towels wrung out as dry as possible. We must bear in mind the necessity of preparing all instruments and dressings with our own hands in the absence of trained assistants, and a method of sterilization similar to that I have outlined will I am sure prove as satisfactory in other hands as it has in mine.

RICHARD E. VENNING, M.D.

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To the notes below and on the following pages, also in future issues, we respectfully direct your attention.

Very truly yours,

THE BUSINESS MANAGER,

Box 484, Detroit, Mich.

KALLITHENOS. — The average individual will fail to profit by his physician's advice to take exercise when that advice is given in a merely general way. The amount and the form of exercise which he is to take must be specifically stipulated—just as his medicines are prescribed, or he is told what to eat. Right here some medical practitioners are pretty sure to stumble by failing to tell their patients how to exercise. Capable men, as we well know them to be, would never think of dismissing a patient with the indefinite injunction to "take a tonic," or "eat wholesome food." But "take exercise" does not mean anything more definite.

Now the question is, What mode of physical exercise can we most confidently recommend to our anemic, constipated, neurasthenic patients? For many people the gymnasium is out of the question; swinging dumb-bells at home becomes monotonous, and is soon neglected; the ordinary "health exerciser" is insufficient; and thus we may find objections to the whole list of appliances designed to develop and invigorate the muscular apparatus.

The Kallithenos Club, known as "The Club with life in it," manufactured by the Kallithenos Co., 73 Eagle Street, Buffalo, N. Y., seems to be the appliance best adapted for healthful exercise without injury. In general appearance the Kallithenos resembles the familiar Indian club, except that it is made of aluminum, and is hollow. A rod passes longitudinally through the club, upon which are arranged weights, separated from one another by spiral springs. As the club is swung, the weights change their positions constantly, imparting a peculiar lifelike movement to the appliance, which makes excercise with it an exhilarating pleasure instead of drudgery.

Properly regulated and systematically conducted exercise with the Kallithenos develops the muscles and improves their tone. It also quickens the reflexes and improves the local circulation. It removes the superfluous adipose padding of the inactive victim of obesity and replaces it with normal, healthy flesh. Whenever thoracic expansion is deficient, no better means of correcting that evil could be suggested than a three months' course with this "lively" friend, the Kallithenos. A very noteworthy feature of this admirable piece of scientific apparatus, which it may truly be said to be, is the fact that the weights within the club may be adjusted to suit any person, old or young, invalid or athlete.

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DR. EDWARD FRANCIS BRADY, in an article entitled "Epilepsy" (*Hospital Bulletin and Clinical Reports*), says: "I do not approve of the Gowers plan of treatment. The dosage is too massive and I think unsafe. The danger from collapse is always to be feared, and if that is escaped bromism is almost certain to be produced. I think that the combination of all the bromides — the potassium, sodium, ammonium, calcium, and lithium — is the best form in which to use them; for that reason I always use Peacock's Bromides. This preparation contains the five bromides, and is a safe, reliable, and staple article, and by its use we escape the substitution of pharmacies."

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Samuel O. L. Potter, A.M., M.D., M.R.C.P., *London, Professor of the Principles and Practice of Medicine in the College of Physicians and Surgeons, San Francisco,* a recognized authority wherever medical science is known, in his handbook of Pharmacy, Materia Medica and Therapeutics, under head of **ALBUMINURIA,** page 600, 7th edition, **in the citation of remedies,** says: **BUFFALO LITHIA WATER of Virginia, is highly recommended."**

Under head of **CHRONIC BRIGHT'S DISEASE,** page 601, same edition, **in the citation of remedies,** he says: **"Mineral Waters, especially the BUFFALO LITHIA WATER of Virginia, which has many advocates."**

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REMOVE THE CURSE.—"In sorrow (pain) thou shalt bring forth children" (Gen. iii, 16). Such was the curse pronounced upon woman at the fall of our first parents, and with rare exceptions it has been universally fulfilled. It is the function and purpose of medication to relieve human suffering, and the alleviation of parturient pains has long been reckoned among the chief purposes of the obstetrician.

Among the many agents employed to obtund the pains of child-birth none have found more cordial welcome at the hands of the discriminating physician than Phenobromate, the latest and best result of synthetic chemistry among the coal-tar derivatives. Whatever excellences may be claimed for this preparation as an antipyretic, and these claims are high, it is preeminently as an analgesic that Pheno-bromate has established its extreme usefulness. In chronic cephalalgia, with its nauseating gastric disturbances, neuralgia, rheumatism, sciatica, dysmenorrhea, gastralgia, menorrhagia, and especially in the alleviation of postparturient pains, this comparatively new remedy has taken foremost rank among the prescriptive medicines of the day. In cases where the administration of chloroform, ether, or cocaine has been regarded as inadvisable and dangerous, Pheno-bromate has been employed with great advantage and with perfect safety.

With such remedial agents as these, with such a veritable panacea to human suffering, it would appear that much of the primal curse